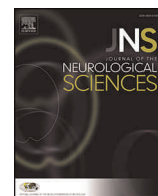


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Stroke

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WFN15-0837

Stroke

Intracranial artery bifurcation thrombus of acute ischaemic stroke in HK Chinese: incidence and clinicoradiologic outcomesJ. Abrigo^a, J. Yu^a, Y. Soo^b, T. Cheung^a, T. Leung^b, K.S. Wong^b, S. Yu^a.^aDepartment of Imaging and Interventional Radiology, The Chinese University of Hong Kong, Sha Tin New Territories, Hong Kong China;^bDepartment of Medicine and Therapeutics, The Chinese University of Hong Kong, Sha Tin New Territories, Hong Kong China

Background: Hyperdense artery sign (HAS) is a highly specific CT finding for acute ischaemic stroke (AIS) and represents intraluminal thrombus. Its presence, length and proximal location can influence recanalization rates and neurologic outcome.

Objective: We report the incidence, distribution and clinicoradiologic outcomes of HAS in Chinese with AIS admitted to a tertiary hospital in Hong Kong.

Materials and methods: This is a retrospective study, enrolling consecutive patients with inclusion criteria: anterior circulation AIS, onset <4.5 hours, and administered intravenous TPA. Pre-IVTPA and follow-up CT were reviewed for HAS and infarct formation, and clinical outcomes were noted. Patients provided written informed consent.

Results: A total of 134 AIS subjects were identified, with average age 73 (40–92) years, comprising 62 (46%) males. Seventy-three (54%) had HAS on baseline CT, located in a single segment (SS) (n = 25) or bifurcation (n = 48): C7–M1–A1 (n = 18) and M1–M2 (n = 30). SS and MCA bifurcation HAS had comparable final infarct sizes but the latter had higher NIHSS at discharge (median 16.5 vs. 8) and mRS at 3 months (median 3 vs. 1). ICA bifurcation HAS was associated with extensive infarcts and highest NIHSS (median 24.5) and mRS (median 5). Four patients with HAS (3 with bifurcation HAS) underwent additional intraarterial TPA.

Conclusion: HAS occurs in over half of anterior circulation AIS in HK Chinese, with majority in the ICA and MCA bifurcations and associated with worse clinicoradiologic outcomes. Bifurcation thrombi are readily identifiable and potentially more efficient markers for triage to IATPA and thrombectomy.

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1234

WFN15-1499

Stroke

The value of D-dimer test for diagnosis of cerebral venous thrombosis in Kuwait neurological centerJ. Al-Hashel^a, D.O.A.A. Youssry^b, S. Ahmed^c, I. Ismail^d, P. Vembu^d.^aNeurology, Ibn sina hospital and faculty of medicine Kuwait university,Kuwait, Kuwait; ^bNeurology, Ibn sina hospital and faculty of medicine Cairo University Egypt, Kuwait, Kuwait; ^cNeurology, Ibn sina hospital and faculty of medicine Alminia University Egypt, Kuwait, Kuwait; ^dNeurology, Ibn sina hospital, Kuwait, Kuwait

Background: Plasma levels of D-dimer shown to be elevated and sensitive for the diagnosis of deep vein thrombosis including cerebral venous thrombosis.

Objective: To assess the usefulness of serum D-dimer level, for the diagnosis of cerebral venous thrombosis (CVT), false positivity, negativity and sensitivity of this test for early diagnosis.

Subjects and Methods: We performed retrospective analysis of 65 patients, from Jan.2005 up to Dec. 2014, with cerebral venous thrombosis, proved by magnetic resonance venography (MRV) or computed tomographic venography (CTV). The patient's files were collected and the data were extracted for the study. Based on these data, the usefulness of serum D-dimer level for the diagnosis of CVT, were analyzed, using simple statistical methods.

Results: The records of 23 male and 42 female were taken for this clinical review. The normal serum D-dimer levels were seen in 33 patients having venous thrombosis. Eight patients had slight elevation of D-dimer levels 200–500 ngm/ml., Thirteen patients had moderate elevation of D-dimer levels and 11 patients had very high levels of D-dimer (1000–2000 ng/ml). The pattern of venous sinuses involved, the neurological deficits were different and not correlated well with serum D-dimer levels.

Conclusion: Raised D-dimer levels are often helpful for early diagnosis of CVT. Since D-dimer test can exclude the need for imaging, physician can use this test, as a screening test to exclude venous thrombosis. The Physician must aware of such D-dimer levels, raised in a variety of other conditions, other than cerebral venous thrombosis.

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1235

WFN15-0698

Stroke

Focal motor status epilepticus (FMSE) due to reversible CNS ischemiaY. Al-Said^a, A. Hassan^a, A. Basndwah^a, K. Kurdi^b, H. El-Zeftawy^b, E. Cupler^a. ^aNeuroscience, King Faisal Specialist Hospital & Research Center, Jeddah, Kingdom of Saudi Arabia; ^bRadiology, King Faisal Specialist Hospital & Research Center, Jeddah, Kingdom of Saudi Arabia

Background: FMSE is usually secondary to metabolic or structural brain lesions. Reversible hypoxia has rarely been reported to cause FMSE.

Objective: To report a case of prolonged FMSE due to reversible focal CNS hypoperfusion.

Patients/Methods: a 90-year-old male presented with 1 week history of severe headache with episodic left-sided hemiparesis. Subsequently, left-sided focal motor seizures involving the face and arm developed that deteriorated into refractory FMSE. A brain CT revealed atrophy and subcortical white matter disease (SCWMD) but no cortical infarction. An EEG revealed delta waves over the right hemisphere compared to alpha waves over the left no epileptic discharges. MRI brain demonstrated an area of right parietal cortical restricted diffusion with an associated abnormality on ADC map. MRA showed a paucity of flow to the left middle cerebral artery branches with areas of mild irregularities intracranially but without severe stenosis. CSF analysis was within normal limits except for a protein of 578 mg/l. SPECT revealed significant decreased perfusion to left frontal, parietal and temporal to lesser extent the left occipital lobes. The patient was treated with multiple anticonvulsants with complete resolution of the seizures and weakness. A follow up brain CT showed SCWMD but no cortical infarction. The Institutional review board approved this case report.

Conclusions: Focal motor status may result from a functional reversible abnormality in brain perfusion. Focal hypoperfusion may occur without focal vascular stenosis. DWI abnormalities may indicate severe hypoperfusion but not cortical infarction as follow up CT did not reveal evidence of a cortical stroke.

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1236 WFN15-0576 Stroke

Role of transcranial Doppler in a multimodal imaging stroke protocol for the evaluation of hyperacute stroke: a prospective observational study

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Background and Objective: Transcranial Doppler (TCD) can demonstrate dynamic information. We aimed to evaluate whether TCD generates useful additional information in the emergency room after a multimodal stroke imaging protocol and also whether this modified the management of patients with hyper acute strokes (<4.5 hours of evaluation).

Methods: Consecutive patients admitted between December 2012 and January 2015 with ischemic stroke of less than 4.5 hours from symptom onset were studied with a protocol consisting of non-contrast brain CT, CTA of cervical and intra cerebral arteries, MRI-DWI and then TCD as soon as possible. The study protocol was reviewed and approved by our institutional ethics and scientific committee.

Results: 86 patients were included. The imaging protocol was performed 113.9 (\pm 346) minutes after stroke symptoms and TCD after 152 (376) minutes. 66 patients were treated with revascularization therapies. TCD provided additional information in 49 cases (56%). More than one piece of additional information was obtained in 17 patients. The most frequent additional information was collateral pathways and active microembolization. Multivariate analysis demonstrated that age ($p < 0.042$), intracranial vessel occlusion ($p < 0.001$) and optimal sonographic windows ($p < 0.004$) were the variables associated with additional information. In 15 patients (17.4%), additional information changed management: In 8 patients endovascular rescue was applied, in 5 patients angiography was suspended and in 2 aggressive neurocritical care was indicated.

Conclusions: TCD can provide additional information to a multimodal acute ischemic stroke imaging protocol, and can result in changes in the management of an important number of these patients.

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1237 WFN15-1130 Stroke

Does awareness about stroke and stroke severity affect stroke arrival time

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Stroke is the second leading cause of death worldwide and the leading cause of adult disability. The time window for effective intervention is very short and often underutilized. One of the reasons is delay in presentation.

In this prospective study conducted by direct assessment and interview of acute stroke patients we aim to assess the relationship between awareness about stroke, stroke severity and arrival time to tertiary hospital in Aseer region, Saudi Arabia

Results: A total of 100 stroke patients were interviewed and completed the survey. The mean age was 67 ± 18 years with 55% males from different educational and social level. Only 29% thought they were having stroke and 15% knowing what stroke is. None of the participants know all risk factors of stroke, and only 1% mentioned all warning signals correctly, 34 of participants did not know what to do when having stroke. Forty three think it is untreatable disease and as expected there was a significant correlation between good knowledge about stroke and early arrival.

Thirty seven patients presented within 3 hours and 44 presented after 12 hours from onset of symptoms. When assessing severity it was found that 29% had minor stroke, 46% had moderate stroke and 25% had severe stroke. Surprisingly, there was a correlation between stroke severity and time taken to presentation.

Conclusion: In spite of lack of recognition of stroke as a treatable emergency and the lack of awareness of stroke symptoms, one third of stroke patients seek medical attention within 3 hours of onset regardless of stroke severity. There is urgent need to increase public awareness about stroke and ensure availability of tPA and acute stroke programs at tertiary care hospitals.

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1238 WFN15-0825 Stroke

NAVIGATE ESUS: Phase-III RCT assessing prevention of stroke and systemic embolism in patients with embolic stroke of undetermined source

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Background: Embolic stroke of undetermined source (ESUS) is a non-lacunar stroke without significant proximal arterial stenosis or an identified high-risk source of cardioembolism. The risk of recurrent stroke in ESUS patients remains substantial. Anticoagulation with a factor Xa inhibitor could optimize management in this patient population.

Objective: NAVIGATE ESUS aims to determine whether rivaroxaban is superior to aspirin for reducing the risk of recurrent stroke and systemic embolism after recent ESUS.

Patients and Methods: NAVIGATE ESUS is a multicenter, international, double-blind, active-controlled randomized clinical trial. Participants with ESUS aged ≥ 18 years will be randomized to either rivaroxaban 15 mg daily or aspirin 100 mg daily (1:1 blinded randomization) within 6 months of their qualifying stroke. Patients with CT or MRI-confirmed non-lacunar ischemic strokes will be eligible in the absence of relevant extracranial arterial occlusion/stenosis $\geq 50\%$, history/evidence of atrial fibrillation after at least 24 hours of cardiac monitoring, intracardiac thrombus on echocardiography, or other identified stroke etiology. Patients with established indications for chronic anticoagulation or antiplatelet therapy, and/or GFR < 30 mL/min/1.73/m² will not be eligible. The primary outcome is time to recurrent stroke or systemic embolism.

Recruitment of 7000 participants began in December of 2014 and will continue at 450 sites in 31 countries, including 54 Latin American sites. With 450 primary events anticipated, the study will have 90% power to detect a 30% reduction in the primary outcome by rivaroxaban vs. aspirin.

Conclusion: NAVIGATE ESUS will provide randomized controlled data on optimal antithrombotic therapy for secondary stroke prevention in patients with ESUS.

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1239

WFN15-0463

Stroke

Association of initial clot burden score with recanalization and clinical outcome after mechanical thrombectomy for acute ischemic stroke

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Background and Objective: There were previous studies suggesting that large clot burden may be associated with poor clinical outcome of unsuccessful recanalization after intravenous thrombolysis in patients with acute ischemic stroke. The purpose of this study was to assess the association of initial clot burden score based on T2*-weighted gradient echo imaging (GRE) with recanalization and functional clinical outcome after mechanical thrombectomy using solitaire stent for acute anterior circulation stroke.

Materials and Methods: We reviewed 65 consecutive patients with acute ischemic stroke who had the occlusion of major anterior circulation arteries and underwent mechanical thrombectomy using solitaire stent at two centers in Republic of Korea between October 2010 and March 2013. Clot burden was assessed on a scoring system based on T2* GRE proposed to adapt to CT angiography-based scale.

Results: Forty of eligible 65 patients were male with a median age [IQR] of 70 years [65–77]. Forty eight (73.8%) patient had susceptibility vessel sign on initial T2* GRE image. Twenty two of 65 (33.3%) patients had clot burden score of 6 or less. There was no correlation between initial CBS and 3-month follow-up mRS score ($r = -0.04$; $P = 0.949$). Thirty six

(83.7%) of patients with CBS of > 6 and 18 (81.8%) of patients with CBS of ≤ 6 had successful recanalization at end-of-procedure ($P = 1.0$).

Conclusion: The results suggest that initial clot burden score on T2* GRE may be not associated with recanalization and functional clinical outcome after mechanical thrombectomy, unlikely after intravenous thrombolysis.

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1241

WFN15-0312

Stroke

Randomised evaluation of low-dose rtPA and intensive BP lowering in acute ischemic stroke: the enchanted trial

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Background: Controversy exists over the optimal dose (0.6 vs 0.9 mg/kg) of intravenous (IV)-rtPA in acute ischemic stroke. Studies indicate that low-dose IV-tPA improves outcomes through lower risk of intracerebral haemorrhage.

Aims: ENCHANTED will assess in IV-rtPA-eligible patients whether 0.6 mg/kg IV-rtPA provides equivalent benefits and lower risk of ICH than 0.9 mg/kg IV-rtPA.

Methods: An independent, quasi-factorial, active-comparative, prospective, randomised, open, blinded endpoint (PROBE), clinical trial evaluating IV-rtPA dose and level of BP control using central internet randomisation of patients who fulfil local criteria for rtPA. Since the study commenced in March 2012, 2153 patients have been included in the rtPA dose arm as of November 3 2014 across a global network (100+ sites; 15 countries), to provide $> 90\%$ power to detect non-inferiority of low-dose iv-tPA. For the BP control arm, near 1000 of the required 2300 patients have been recruited to date. The study is funded by the Australian government (NHMRC project grant 1020462). Baseline characteristics of participants are presented.

Conclusions: Low-dose IV-rtPA and as early intensive BP lowering could provide more effective, safer and affordable lytic treatment for AIS worldwide.

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1242

WFN15-1221

Stroke

Descriptive study of a family with Fabry disease and its changes in brain MRI in Arrecifes, Buenos Aires Province

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Fabry disease (FD) is an inherited X-linked, rare disease, with an incidence of 1/40000. Lysosomal storage disorder caused by the decrease or absence of alpha-galactosidase A Lysosomal, causes accumulation of GL3 (globotriaosylceramide) and other glycosphingolipids in different cells, including vascular endothelium. Some frequent symptoms are neuropathic pain, dysautonomia, gastrointestinal disturbance, hypohidrosis, with early renal, cardiac and cerebrovascular failure.

Objective: describe epidemiological data and the results in brain magnetic resonance imaging (MRI) in FD family

Material and methods: 10 patients were included, their medical history was performed. Brain MRI and resonance angiography was done.

Results: the study is carried out in a family of 47 members. 17 were diagnosed Fabry positive (mutation E398X). Brain MRI could be completed in 10 patients. The average presentation age was 38 +/- 12 years old. 80% were women. Early onset symptoms appeared between the ages of 6 and 11. Three patients are still asymptomatic. The symptoms were hyperhidrosis (70%), acroparesthesia (60%), abdominal pain (50%) and hearing loss (40%). Only 90% of symptomatic patients developed microalbuminuria and a 30% developed heart disease. Brain MRI showed periventricular white matter lesions (40%), cortical volume loss (60%), dilated vertebrobasilar artery (20%). Only one patient experienced a stroke. 50% of the patients receive specific treatment.

Conclusion: A high percentage of the patients showed brain variations in the MRI in the silent form.

In these patients, we suggest a complete medical history and tracking (where the age of first symptoms is important). In neurologist exam, brain MRI is the best for diagnosis in this disease.

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1244
WFN15-0928
Stroke

Stroke in infants and children in Villa Clara, Cuba. 2005-2014

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Background: Stroke in children differs from adults in numerous ways and in consequence management guidelines have to be different, although a clear necessity exists, the undertaken studies are still insufficient.

Objective: To describe stroke in children, from birth until 18 year old in Villa Clara, Cuba in a ten year period.

Methods: A descriptive study was performed in Jose Luis Miranda Hospital, in Villa Clara Cuba from 2005 until 2014. Data were collected through interview after fathers consent, clinical charts and analyzed with SPSS. The study has received proper patient and Institutional Review Board approval.

Results: The average incidence of stroke in pediatric age was of 2,37 per 100 000 children, and it increase in latest years, with a sex rate of 1,45. Hemorrhagic was the most frequent subtype (53 patients). The sample was divided in Perinatal Stroke, associated to prematurity, high risk pregnancy for hypertension or vaginal sepsis, peripartum hypoxia; and Pediatric Stroke associated with sepsis, MAV, hematologic diseases, congenital heart disease. The main features were

disorders of consciousness (47), focal deficits (36), and medial cerebral artery in neuroimage in 38% of patients. There was 43,52% of mortality, due to cerebral hemorrhage and respiratory failure in the majority of cases, while 50,93% remain with had some sequela as focal deficit or epilepsy.

Conclusion: Stroke in pediatric age has increased over the years, even yet is low; it is an important cause of mortality and neurologic disability among children.

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1248
WFN15-1043
Stroke

Critical closing pressure as a proxy for PaCO₂ in non-linear multivariate models for estimation of dynamic cerebral autoregulation and cerebrovascular reactivity

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Background: Dynamic cerebral autoregulation (dCA) is highly influenced by PaCO₂ (measured by end-tidal CO₂, EtCO₂). Multivariate non-linear models using support vector machines (SVM) [1] have been successfully used to estimate the simultaneous effects of systemic arterial blood pressure (BP) and EtCO₂ on cerebral blood flow velocity (CBFV).

Objective: To assess the feasibility of replacing EtCO₂ by critical Closing pressure (CrCP) to estimate cerebrovascular reactivity (CVR) under normocapnic and hypercapnic conditions.

Methods: Sixteen healthy subjects aged 31.8 ± 8.5 years were studied. The study was approved by the Leicester Research Ethics Committee. CBFV was recorded with transcranial Doppler using a 2 MHz transducer. ABP was measured with the Finapres device. CrCP was obtained by linear regression [2]. Four subjects were rejected due to negative values of CrCP. Non-linear SVM multivariate models were trained under normocapnia only, and tested with individual CrCP signals in normocapnia and hypercapnia.

Results: Average correlation of models was 0.77 ± 0.1 (p = 0.0052 against linear models) Model free autoregulation index (mfARI) [3] was obtained for models with CrCP showing deviation from normality. Significant differences (Wilcoxon p = 0.02) were observed between normocapnia (mfARI = 7.0 ± 2.1) and hypercapnia (mfARI = 5.6 ± 2.8).

Discussion/Conclusion: CO₂ reactivity can be obtained similarly as mfARI. Replacing EtCO₂ with CrCP as the second input in multivariate non-linear models still allows identification of the influence of PaCO₂ on dynamic CA. This finding has practical implications in clinical scenarios where continuous measurements of EtCO₂ are not possible. Further applications of this approach are needed in older subjects and patients with different pathological conditions.

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1249

WFN15-1545

Stroke**Stroke risk factors in a Moroccan population: a multicentric prospective study**

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Background: Stroke is major socio-economic burden in the occidental world, and is growing in the developing countries. The general risk factors (RF) for stroke are known, but specific RF for each type are unclear.
Objective: To describe the RF associated with stroke and its different categories.

Patients and methods: A prospective multicentric study was conducted in 3 departments of neurology (2 in Rabat, 1 in Casablanca) between 2008 and 2012. All patients with ischemic stroke admitted within 5 days were included. Stroke was confirmed on neuroimaging. All patients underwent cardiac and biological exploration. TOAST classification was used to classify the etiology of stroke. The NIHSS score was used to classify patients according to the severity of stroke. Data between the etiology and severity groups were compared through a univariate analysis.

Results: 157 patients were included. Mean age was 59,5 ± 11,4 ans, sex ratio was 10/7. Hypertension was present in 59,9%, diabetes in 31,2%, dyslipidemia in 61,8%, tobacco in 31,8% and obesity in 26,1%. RF were not found in 8,3% and 2 RF or more were present in 28,7%. Stroke etiologies were dominated by large vessels disease and cardio-embolic origin. Stroke was classified as severe in 50,8%. RF were not significantly associated with stroke etiologies, neither than stroke severity.

Conclusion: Dyslipidemia was the major RF present in our population. Larger population based study are necessary to assess the relation between this RF and stroke sub-types.

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1250

WFN15-1513

Stroke**Clinical outcome of acute ischemic stroke who underwent recanalisation therapy at a Brazilian academic hospital**

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Background: The main treatment for acute ischemic stroke is early recanalisation and brain reperfusion. There is very few information available about eligibility and impact of this therapy on functional outcome in developing countries.

Objective: to evaluate clinical characteristics, eligibility to recanalization treatment and functional outcome of acute stroke patients in a tertiary academic stroke center in Brazil.

Patients and Methods: Acute stroke patients admitted between January to September 2013 were prospectively assessed. Demographic data, comorbidities, previous disability, NIHSS and treatment were evaluated. Three months after stroke, patients were reevaluated using a validated version of the modified Rankin Scale (mRS).

Results: Out of 254 patients (56,7% male), mean age was 67,44 ± 12,42 years. According to NIHSS at admission, the proportion of mild, moderate and severe strokes were 23,6%, 35,8% and 35,9%. The

eligibility for IV TPA, Endovascular therapy and “bridging” were 13,8%, 3,9% and 6,3% respectively. Three months after stroke, the mRS frequencies of 0, 1, 2, 3, 4 and 5 were 4,3%, 9,4%, 11,4%, 14,6%, 9,1%, 8,7%, 31,5% and the mortality rate (score 6 on mRS) were 11%.

Conclusion: Recanalization therapies for acute ischemic stroke can be delivered to acute ischemic stroke patients in a Brazilian stroke center with good eligibility rates and positive impact on functional outcomes.

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1251

WFN15-1252

Stroke**Aphasia after infarction of the left posterior pulvinar nucleus of the thalamus - case report and literature review**

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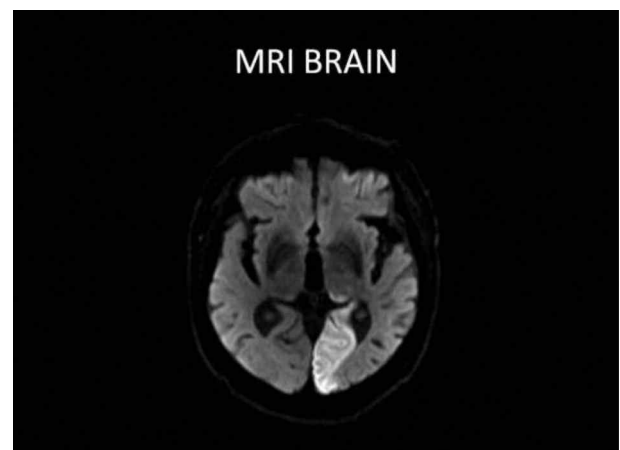
Background: Isolated ischemia of the pulvinar nucleus is not frequently reported and the role of different thalamic nuclei in discrete language function is not well understood. We report the characteristics of aphasia in a patient after left PCA stroke with selective involvement of the dominant left posterior pulvinar nucleus.

Objective: To describe a case of aphasia due to left thalamic pulvinar nucleus infarction and review the literature on thalamic influence on language function.

Design/methods: case report, literature review.

Results: A 79-year-old left handed man admitted for an elective left knee replacement, started to complain of right sided vision loss on post-operative day 3. Examination showed right homonymous hemianopsia, decreased attention, disorientation and fluent speech with multiple semantic and phonemic paraphasias, neologisms, word salad and impaired naming. A brain MRI showed a confluent area of restricted diffusion in the left occipital lobe with extension to discretely involve the left thalamic pulvinar nucleus. The aphasia improved and 6 days after the stroke, he had only mild anomia.

Conclusions: Posterior thalamic territory infarctions have been described in the literature. Our patient presented with the typical triad of symptoms described in prior reports of thalamic aphasia: fluent output with semantic paraphasias, mild impairment of comprehension and normal repetition. However this syndrome has been difficult to localize to a specific nucleus. The role of the pulvinar nucleus in language generation is still poorly understood. The report of clinical cases with lesions that selectively affects different thalamic nuclei can help to further demarcate their function.



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1252
WFN15-0717

Stroke
Intracerebral hemorrhages in CADASIL: a family report of four cases and a brief review

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Background: Cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy (CADASIL) is a hereditary vascular disease and its mainly clinical manifestations are early-onset infarcts. Intracerebral haemorrhages (ICH) in CADASIL have rarely been reported.

Methods: We describe four CADASIL cases in a family. We also briefly review the literature on ICH in CADASIL.

Results: A 50-year-old female proband and her younger brother experienced ischemic strokes (age at onset: 50,45), although both of them were misdiagnosed with demyelinating encephalopathy at first. Her father and aunt experienced ICH (age at onset: 66,58) and her father died after a second ICH, both of them do not have any symptoms before ICH. None of these patients was receiving statins, antiplatelets or anticoagulants at the time of hemorrhage; all the four patients were not hypertensive. Brain MRI revealed extensive leukoariosis and multiple lacunar infarcts in the deep white matter and brainstem. We detected R544C mutation of the Notch3 gene in the proband and her brother and aunt, as a result, they were diagnosed with CADASIL.

Conclusions: A diagnosis of CADASIL should probably be considered also in patients with ICH, especially those patients with typical MRI feature of CADASIL and without hypertension. MRI screening for cerebral microbleeds might be helpful in predicting the risk of ICH and guiding antithrombotic therapy.

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1253
WFN15-1227

Stroke
Associated factors with increased door-to-needle time: results from RECCA registry

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Background: Effect of intravenous rt-PA (IV rt-PA) is time-dependent in acute ischemic stroke. International guidelines recommends door-to-needle time (DNT) <60 minutes. There are several reasons for DNT ≥60 minutes.

Objective: Describe associated variables with DNT ≥60 minutes.

Patients and Methods: We include 250 consecutive patients treated with IV rt-PA alone or associated to IA thrombolysis in Clínica Alemana, Santiago, from November 1998 to December 2014. Delayed thrombolysis was defined as DNT ≥60 minutes. Appropriate ethics committee approved the study.

Results: 211 received IV rt-PA (84.4%) and 39 associated therapy (15.6%). 140 were male (56%). Mean (DS) age was 67.7 (17.4) years. Median (IQR) NIHSS was 9 (6–16). Median (IQR) DTN was 64 (47–83) minutes. Number of cases has increased from 1 on 1997 to 33 on 2014 and median DNT has decreases over the years from 115 minutes to 41 minutes ($r = -0,37$). NIHSS was inversely correlated with DNT ($r = -0,12$). On 151 cases (60.4%) DNT was ≥60 minutes. Variables associated to DNT ≥60 minutes were NIHSS ($p = 0,017$), age ($p = 0,017$) recent surgery ($p = 0,021$) and year of treatment ($p < 0,0001$). On logistic regression variables associated

to DNT <60 minutes were NIHSS (OR = 1.07 CI 95% 1.01–1.12), $p = 0,012$) and year (OR = 1.22 (CI 95%: 1.12–1.32, $p < 0,0001$).

Conclusions: Severity of neurological deficit and year were inversely associated with delayed thrombolysis. A less severe neurological deficit may cause relaxation in the treating team. Over the years volumen of patients and experience of physicians has increases achieving lower DNT.

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1255
WFN15-0539

Stroke
Spontaneous vertebral artery dissection: a case report and review of the literature regarding clinical and radiological features

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Introduction: Spontaneous vertebral artery dissection (VAD) is often associated to minor trauma events, such as playing tennis and chiropractic manipulation, being a common cause of stroke in young adults. None of its symptoms are specific and accurate radiological patterns of dissection are frequently absent. CT angiography and conventional angiography are associated with higher diagnostic sensitivity rates.

Objectives: This report describes a case of spontaneous VAD and presents a literature review.

Methods: A 41-years-old female presented with a fifteen-day left cervical pain, irradiated to mastoid and shoulder and unresponsive to NSAIDs, after watching a tennis game. Dizziness, vertigo, tinnitus, imbalance and visual complaints were absent. Cervical bruits were also absent. Neurological examination did not show gait abnormalities, ataxia or signs of cranial nerves impairment. I have obtained patient approval, as necessary.

Results: Ultrasound Doppler showed reduction of the vascular lumen and wall thickening on the left vertebral artery. Magnetic resonance angiogram confirmed the dissection. A conventional angiography showed a 3 cm dissection, intimal flap and thrombosis.

Conclusion: The most common reported symptoms in literature data of VAD onset are: neck pain or occipital headache, stroke, dizziness and vertigo. TIA is less frequent and SAH is rare in extra-cranial dissections. Generally, less specific image findings (arterial stenosis or dilatation) are more frequent than direct signs of dissection (double lumen and intimal flap). This case reaffirms the necessity of considering VAD as a differential diagnosis in young adults with sudden cervical pain and unilateral occipital headache.

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1256
WFN15-0597

Stroke
Endovascular treatment of acute stroke with tandem occlusion of internal carotid and middle cerebral artery

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Purpose: To evaluate our experience with endovascular treatment of acute stroke patients with tandem occlusion of extracranial internal carotid artery and middle cerebral artery.

Material and method: From August 2013 to January 2015 we treated 7 patients (2 women and 5 men aged 58–65 years, mean age 64 years), with occlusion of middle cerebral artery and simultaneously with significant stenosis (>90 %) or occlusion of internal carotid artery in carotid bifurcation at our department. All patients were admitted to hospital within 6 hours after onset of symptoms.

Results: Acute carotid stenting was technically successful in all patients, 100 %. Intracranial recanalization with TICI 3 was achieved in 4 patients, TICI 2b in 3 patients. Symptomatic hemorrhage occurred in one patient. Good clinical outcomes (mRS \leq 2 at 3 months) had 5 patients.

Conclusion: Endovascular recanalization of tandem occlusion of extracranial internal carotid artery and middle cerebral artery is feasible with good technical and clinical results.

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1257

WFN15-0594

Stroke

Regulation of astrocyte networking by G-protein regulatory motif peptides of AGS3 protein

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Background: Inflammation characteristics in CNS disorder such as stroke, trauma, and autoimmunity have been essential for astrocyte. To investigate how inflammation signaling controls astrocyte functions, we tested effects of CXCR4 on cultured mouse primary cortical astrocyte.

Objective: The aims of the present study were to examine the mechanisms by which CXCL12 affects cell death-specific signaling and modulation in astrocyte, which depend on activator of G-protein signaling (AGS) 3 and to identify specific molecules that suppress CXCL12-induced injury by acting on G-protein-coupled receptors.

Methods: We used cytokine array to perform cytokine/chemokine secretion profiling, and measured its own signaling, which is involved to astrocyte functions.

Results: Herein, AGS3 suppresses CXCL12-mediated upregulation of TNF α by regulating G α_i . We found that the G-protein regulatory (GPR) motif peptide in AGS3 binds to G α_i and downregulates TNF α expression and cell death; in contrast, this motif upregulates them. Mutated GPR peptide increased the expression of TGF β but decreased the expression of TNF α , thus decreased astrocyte cell death. Moreover, CXCR4-induced dendritic extensions in 2D and 3D matrix cultures were inhibited by the mutant GPR peptide compared with a wild-type GPR peptide.

Conclusion: These results suggest that inflammatory stimuli upregulate astrocyte molecular communications associated with cell death-related functions and significantly alter astrocyte signaling stimulated by CXCR4 GPCR.

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1260

WFN15-0259

Stroke

Extensive cerebral venous sinus thrombosis originated from internal jugular vein catheter for chemoport

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Background and objective: Internal jugular vein catheterization for chemoport can be complicated by infection and thrombosis. Particularly in patients with malignancy, activated coagulation system is prone to the development of thrombosis. We aimed to report a case of cerebral venous thrombosis in a cancer patient with chemoport.

Methods: We performed a chart review in a case of cerebral venous thrombosis developed from kinked internal jugular vein catheter chemoport.

Results: A 58-year-old man with angioimmunoblastic T cell lymphoma presented with headache and left hemiparesis. Headache and left side weakness developed 8 days ago. The weakness was worsening for several days. Blood test showed increased level of D-dimer and fibrinogen degradation product. On initial diffusion weighted MRI, linear high signals on precentral gyrus were observed. On gradient-echo MRI, prominent linear branching dark signal intensities at both frontal, parietal, and temporal sulci, probable cortical vein congestion. MR venography revealed non visualization of both transverse sinus, partially visualized superior sagittal sinus. Engorgement of cortical veins, basal vein of Rosenthal, vein of Galen and straight sinus were also observed. On CT angiography, extensive venous sinus thrombosis along the superior sagittal vein, right transverse sinus due to the implanted chemoport with kinking catheter in the os of right internal jugular vein. With removal of the chemoport, the patient received anticoagulation. The patient's symptom subsequently improved.

Conclusion: This case warns the risk of cerebral venous thrombosis in a catheter imported patients in a highly thrombogenic condition such as malignancy.

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1261

WFN15-0888

Stroke

Aspirin resistance coincide with clopidogrel non-response

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Background and Objective: Aspirin (ASA), the most commonly used antiplatelet agent, prevents stroke recurrence among patients with a recent stroke or transient ischemic attack (TIA). However, clinical and laboratory evidence demonstrates diminished or no response to ASA in some patients that is called ASA resistance. This situation has been reported to be independently associated with an increased risk of adverse cardiovascular events. Current evidence-based guidelines provide little or no recommendations on the proper management strategy for stroke patients who have ASA resistance. Also, clopidogrel non-responder by CYP2C19 polymorphism is reported about 20%, in particular in the case of East Asian 35–50% have been reported. The purpose of our study is that ASA resistance seen with clopidogrel non-response at the same time to analyze the frequency and the clinical difference.

Methods and Results: 193 patients who admitted to ischemic stroke from February to May, 2014 in Chosun university hospital were assessed. For patients with cardioembolic stroke stroke and without resistance records were excluded. Resistance was checked after 5–7 days from ASA medication and analyzed using the PFA-100 aggregometer. CYP2C19 polymorphism was investigated. 44 patients (6.6%) showed ASA resistance. Clopidogrel intermediate or poor response were 18%. The 5 patients (11.3%) with ASA resistance were clopidogrel non-response. We found no correlation between dual resistance and vascular risk factors, type of stroke, severity or sex. However, patients with resistance to ASA presented a higher frequency of previous stroke ($p = 0.01$).

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1262
WFN15-0998

Stroke
DWI-Flair mismatch can extend the endovascular treatment time in unknown onset stroke

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Background: About 25% of all strokes occur without knowledge of exact time of symptom onset, one of the exclusion criteria for thrombolysis. Recent studies report that when DWI findings are positive and FLAIR negative (mismatch), there is a strong likelihood that the stroke onset is less than 6 hours.

Objective: Communicate our experience in patients with ischemic unknown onset stroke (UOS) time with emergent large vessel occlusion (ELVO) and mismatch DWI-FLAIR treated by endovascular approach.

Material and Methods: 20 patients with UOS and ELVO were retrospectively selected between October 2012 and July 2014. All of them presented DWI-Flair mismatch and were treated by endovascular approach. NIHSS was registered before and after treatment, and mRS at 90 days after the stroke onset.

Results: All patients were clustered according to the NIHSS. 5 patients had a score lower than 10 points and 15 patients with a higher score; the average age was 70. The first group (lower than 10 points), 4 had better outcomes and 1 worse. In the second group, 13 showed improvements. At 90 days follow up, 60% of patients presented a mRS of 2 or less and the mortality rate was of 25% (4 of them in perioperative period).

Conclusion: This study improves the understanding of DWI-FLAIR mismatch as a biomarker in UOS of patient's management. The DWI-FLAIR mismatch could help to identify patients with stroke-to-MRI delays <6 hours, and it can be used to make therapeutic decisions with a reliable outcome and low rate of neurological complications.

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1263
WFN15-0611

Stroke
Setting up the Brunei Neuroscience Stroke and Rehabilitation Centre 12,000 km away with the help of telemedicine

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Background: Acute and neurological diseases are increasing, being killer no. 1 in South-East-Asia, Russia and India. There is a need for special neurological knowledge, in stroke but- to ensure high quality- in non-stroke as well.

Our project offers to overcome distances and a long-time benefit for patients. It comprises the set up of a specialized local stroke unit, neurological intensive care unit, normal wards and neuro-rehabilitation. Achieved by continuous medical education and telemedical consultation.

Aim: Aim of this project called **to teach to treat - to treat to teach** is to set up a world-class centre of neurology in Brunei Darussalam over a distance of 12,000 km.

Methods: Set up of the Brunei Neuroscience Stroke and Rehabilitation Centre (BNSRC) started 7/2010. In order to overcome the distance, a telemedical network between the Department of Neurology of Krankenhaus Nordwest, Frankfurt/Main, Germany (KHNW) and the BNSRC was established. Daily tele-teaching as well as 24/7 tele-neurology services are offered. All neurological laboratories have been set up on site, tele-cytology, tele-electrophysiology including EEG and ultrasound.

Results: So far patients with stroke, intracerebral hemorrhage, aneurysms, myasthenia gravis, Parkinson's disease, encephalitis and other neurological diseases as in- and out-patients have been seen. We evaluated 85% ischemic strokes and 15% hemorrhagic. Thrombolysis, hemispherectomies, hypothermia, invasive intracranial pressure measurement have been also performed. 1st intravenous thrombolysis had a door to needle time of 24 minutes. We have achieved world-class neurological intensive care standards in a brief period. Training programs and the back up with telemedicine are ideal for teaching and treating in Neurology.

Conclusion: Stroke is a major disease and prevention is more important than ever. Setting up BNSRC is not only a useful tool, for more it proved to be feasible and successful to cooperate irrespective of distance, religion and culture.

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1264
WFN15-0230

Stroke
Temporal changes in etiology and vascular burden of urban Polish stroke patients from 1995 to 2013

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Background: Our aim was to investigate long term trends in risk factors and their pre-stroke control in acute stroke patients, distribution of vascular risk factors and pre-stroke management of those risk factors in Polish stroke patients from the urban setting.

Methods: This is a retrospective registry-based analysis of consecutive acute stroke patients from a highly urbanized area (Warsaw, Poland) admitted to a single stroke center between 1995 and 2013. We distinguished four time periods: 1995-1999 (n = 529), 2000-2004 (n = 1253), 2005-2009 (n = 1320) and 2010-2013 (n = 871).

Results: During the study 3973 first-ever stroke patients were admitted. The proportion of ischaemic strokes (88.2% to 90.9%) and males (45.2% to 46.2%) remained stable throughout the study period. Patients became older (72 to 76 years), were more likely to be diagnosed with hypertension (61.1% to 72.8%) and disable (84.3% to 67.4%) before stroke. Increase in pre-stroke use of antihypertensives (from 77.8% to 90.5%), antiplatelets in patients with coronary artery disease (from 33.9% to 56.5%), vitamin K antagonists in patients with atrial fibrillation (from 6.3% to 39.8%) and statins (from 7.6% to 26.3%) was noticed. There was a decrease in stroke severity (9 to 6 points on the National Institutes of Stroke Scale) on admission and the proportion of strokes attributed to small-vessel disease (22.0% to 8.3%).

Conclusions: Over the last two decades the profile of urban Polish stroke patients have changed significantly. Better management of pre-existing

vascular risk factors were accompanied by decreasing baseline deficit and lower proportion of strokes attributed to small-vessel disease.

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1265

WFN15-0804

Stroke

Significant association between cardio-ankle vascular index and deep subcortical white matter hyperintensities in patients with acute ischemic stroke

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Background/Purpose: The purpose of this study is to elucidate the association between cardio-ankle vascular index (CAVI), which is an indicator of arterial stiffness independent of blood pressure, and deep subcortical white matter hyperintensities (DSWMH) in patients with acute ischemic stroke.

Subject/Method: Subject were 721 patients with acute onset of cerebral infarction (age; 74.0 ± 11.4 years old, 441 males) who were admitted to our hospital from 1st October 2009 to 31st December 2014. Diagnosis of cerebral infarction was based on TOAST classification. DSWMH was graded by the Fazekas classification. On admission, blood was drawn for analysis. The measurements of ankle-brachial index (ABI) and CAVI were performed using FUKUDA DENSHI VaSera VS-1000 or VS-1500 during hospitalization. We excluded the patients with ABI <0.9. "CAVI max" was defined as the higher CAVI in either right or left leg.

Result: According to the Fazekas classification, 169 patients 'Grade 0', 119 patients 'Grade 1', 207 patients 'Grade 2', and 226 patients 'Grade 3'.

There were significant difference between groups in sex ($p = 0.001$), age ($p < 0.001$), BMI ($p < 0.001$), lymphocyte counts ($p < 0.001$), hemoglobin ($p < 0.001$), CRP ($p = 0.003$), BUN ($p = 0.001$), eGFR ($p < 0.001$), triglyceride ($p = 0.003$), albumin ($p < 0.001$), cholinesterase ($p < 0.001$), blood sugar ($p = 0.001$), BNP ($p < 0.001$), FDP ($p < 0.001$), D-dimer ($p < 0.001$), PT-INR ($p < 0.001$) and CAVI max ($p < 0.001$).

Multiple logistic regression analysis showed CAVI max (Odds ratio 1.195 95%CI 1.021-1.400 $p = 0.027$) had significant association with DSWMH.

Conclusion: Arterial stiffness assessed by CAVI was associated with severity of DSWMH in patients with acute ischemic stroke. The significance of this association warrants further investigation.

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1266

WFN15-0248

Stroke

Dural arteriovenous malformation at the right paramedian area of skull base in a 52 year old male: a case report

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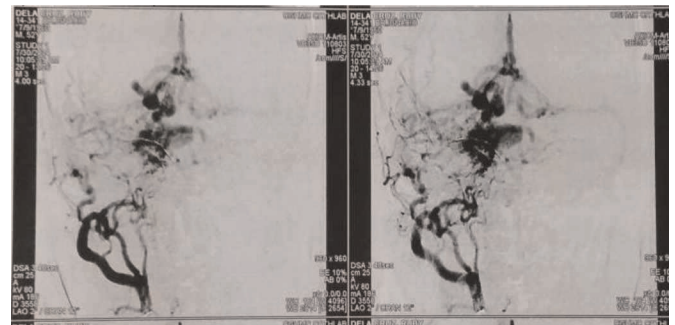
Background: Dural arteriovenous malformations (DAVMs) contain abnormal arteriovenous shunt components within the dura mater representing 10-15% of all arteriovenous malformations with estimated incidence of 0.17% per 100,000.

Objective: To report the case of a 52 year old male with dural arteriovenous malformation at the right paramedian area of skull base presenting with multiple ipsilateral craniopathies, motor incoordination, and contralateral sensorimotor deficits.

Case presentation: R.D.C is a 52 year old male, Filipino, Roman Catholic, right handed, married, food vendor, high school graduate from Caloocan City seen in our institution last August 29, 2014 due to headache. Neurological examination: visual acuity of 20/400, OD and 20/100, OS, decrease V1-V3 sensation on right, lateral rectus palsy, ipsilateral peripheral facial nerve palsy, sensorimotor deficits on left extremities, dysmetria and dysdiadochokinesia on right extremities, and gait disturbances.

Six-vessel angiography revealed dural arteriovenous malformation at the right paramedian area of skull base with feeding arteries from the distal branch of both internal maxillary arteries, right middle meningeal artery, transosseous branch of both occipital arteries, bilateral ascending pharyngeal arteries, bilateral meningohypophyseal trunk and from the proximal right ophthalmic artery.

Conclusion: Dural arteriovenous malformation located in the cavernous sinus presents with symptoms of ipsilateral cranial nerve deficits, tinnitus, blurring of vision, ipsilateral motor incoordination, contralateral sensorimotor deficits secondary to mass effect on the adjacent cerebellopontine region.



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1267

WFN15-1241

Stroke

Etiology and functional outcome by gender in acute ischemic stroke in a tertiary care hospital: clinica Alemana stroke registry: 1997-2014

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Background: The incidence of stroke is higher in men in Chile. Cardio embolic has a higher incidence in older women and atherothrombotic etiology a higher incidence in older man.

Objective: To report gender differences in etiology, functional outcome by age group in acute ischemic stroke admitted to our center during 17 years.

Methods: This is a single center, descriptive study of a prospective registry in Clínica Alemana de Santiago, Chile, from 1997 to 2014. We used the TOAST classification for stroke etiological subtype. All patients were studied with CT/MRI, CT/MR angiography, TCD, echocardiography, EKG monitoring. The variables were age group (each ten years), NIHSS at admission, thrombolytic treatment, etiology, modified Rankin scale. We used chi-square, ANOVA and logistic regression modeling for statistical analysis between groups. The appropriate ethics committee approved the study.

Results: 2239 consecutive patients were included; 1017 (54.7%) females, mean ages were 68 (15.3 SD) for men and 71 (17.2 SD) years for women ($p = 0.0005$). Cardio embolic etiology was more frequent in women ($p = 0.003$) and Atherothrombotic etiology was more frequent in men ($p = 0.01$); the distribution of mRankin Scale showed greater disability in

women ($p = 0.01$). The frequency of Cryptogenic stroke, arterial dissection and age groups they did not differ between genders.

Conclusion: In this sample, women with stroke were older and has significantly more cardio embolic stroke than men. These findings are similar to previous reports.

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1269

WFN15-1425

Stroke

Factors of progression in spontaneous vertebral and basilar artery dissection: data of 110 patients from a single center in China

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Background: Spontaneous vertebral or basilar artery dissection is an important cause of posterior circulation infarction and subarachnoid hemorrhage in young and middle-aged individuals. However, the risk factors of dissection progression are unclear.

Objective: To explore the possible risk factors associated with clinical deterioration or radiographic progression in patients with vertebral or basilar artery dissections.

Patients and Methods: Data of consecutive patients diagnosed as spontaneous posterior circulation artery (vertebral or basilar artery) dissections from March 2008 to May 2015 was reviewed retrospectively. The demographic characteristics, risk factors of vascular disease, clinical and imaging findings and treatment strategies were recorded. Progression was defined as recurrent stroke, TIA or death (clinical progression), or morphological worsening of dissections (radiographic progression) during follow-up period. This study was approved by the institutional review board of Huashan Hospital, Fudan University.

Results: Of the 110 patients included in this study, fifteen (13.6%) patients experienced progression. Recurrent posterior circulation ischemic events were seen in two patients (1.8%), one patient (0.9%) died of multiple complications, and twelve (10.9%) patients showed morphological deterioration. Compared with their non-progression counterparts, patients with progression demonstrated older age, higher prevalence of hypertension, intracranial segment involvement and dissecting aneurysm. Multivariate analysis indicated that only older age and dissecting aneurysm were significantly related to the progression ($p = 0.048$ and 0.004).

Conclusion: Despite the relatively low clinical deterioration rate in spontaneous vertebral or basilar artery dissection, radiographic progression is not rare, thus regular follow-up is necessary, especially for patients with older age or dissecting aneurysm.

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1270

WFN15-0560

Stroke

Thrombolysis intravenous in patients with stroke – stroke unit

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Goals: Share our experience in attention to patients with stroke, who received treatment with rTPA. Since July 2012 to April 2015, in the Institute of Prevision Social, Central Hospital, from Asuncion, Paraguay.

Materials and Methods: Transversal observational, descriptive study. Grown up patients of both sex were included, they arrived 3 hours before

the beginning of the symptoms and received rTPA before of the 4,5 hours. Were registered their age, sex, risk factors, and complications, NIHSS at entry, post- thrombolysis at 24 hours and at the discharge of the patient.

Results: 26 patients were included with stroke diagnostic, and all of them have thrombolysis, from them 17 were men and 9 woman. The range of age was from 36 to 84, with a media of 68 years old. The most frequently risk factor was arterial hypertension founded in 24 patients. 20 patients had two or more risk factors. Patients with complications were 19; 9 of them had Brain Hemorrhage and 5 had pneumonia. The NIHSS scale at entry was moderated 10, important 10 and serious 6, post-thrombolysis 16/9 and 1 respectively.

Conclusions: The patients older than 60 years old, predominately, in our experience, had thrombolysis. The risk factors more frequently were the HTA, atrial fibrillation, obesity, cardiovascular disease. Most of them had shown improvement from NHSS post thrombolysis. Our population, actually, is not statistically significant. We have to keep increasing our efforts in the study of the patients with thrombolysis requirements for in the future improve the morbidity and mortality of them.

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1271

WFN15-0570

Stroke

Burden of cerebro-vascular disease in Cameroon

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Background: Cerebro-vascular accidents(CVA) constitute a major public health problem worldwide and particularly in developing countries where data are scarce.

Objective: To describe the epidemiology, cerebro-vascular risk factors, clinical findings and outcome(fatality case and disability) of CVAs from urban and rural health care centers in Cameroon from 2012 to 2014.

Methods: The records of in and out-patients from health care centers were reviewed.The following data were analyzed: demographics, cerebro-vascular risk factors, clinical findings, death and disability.CVA was considered according to WHO definition;transient ischemic attacks were excluded.

Results: Out of 20131 medical chart reviewed,1277 cases of CVA (6,34%) were identified and 4,6% were from rural area.The mean age was 60.85 +/-13.78 years,and 48% were female.The main cerebro-vascular risk factors were hypertension (62,1%), diabète mellitus (15,2%), alcohol (12,5%), previous CVA (8,8), ischemic cardiac disease (8,6%), Tobacco (6,8%), patient with HIV infection (2,9%) and dyslipidemia(2,6%). Symptoms were paresis(83,1%), speech problem(25%), altered mental status (16,7%), headache (13,6%), sensory disturbance (6,8%), cognitive dysfunction(3,8%),hyperkinetic movement(1,8%) and visual problem (1,3%). The fatality case in in-patients was 20,7% and 43,1% of fully depeudent, 33,2% had mild to moderate depeudent and 23,7% completely recovered.

Conclusion: CVA is associated with a high mortality rate and disability.There is an urgent need for legislation to reinforce primary prevention and to set up specialized teams for better management.

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1272

WFN15-0050

Stroke

Acquired crossed aphasia: a report of four cases in Uyo, Southern NigeriaB. Ekeh, F.O. Dike, W. Paul, B.E. Bassey. *Internal Medicine, University of Uyo Teaching Hospital, Uyo, Nigeria*

Background and Aim: The term crossed aphasia is used exclusively to describe aphasia following a right hemisphere lesion in a right handed person. It is rare and estimated to occur in 1-3 % of stroke survivors. We report 4 cases of crossed aphasia seen in our practice within one week.

Case Report: We report the case of four women ages 55-70 years who are right handed. They all presented with sudden weakness of the left side of the body. Three presented within one week while the last one presented after one month. There was associated inability to speak. One of the women had a previous history of forgetfulness. She also had headache fever and neck stiffness. All had prior history of poorly controlled hypertension and were also postmenopausal. Examination revealed aphasia in all the patients. Two of the women had expressive aphasia while the other two had global aphasia. All the women had left hemiparesis. Three of the women had brain CT scan. One revealed hypodense lesions in the right hemisphere, another revealed moderate dilatation of the ventricles and basal cisterns. All patients had supportive therapy. They all recovered the hemiparesis sufficiently to be discharged home but the aphasia persisted. All the patients were lost to follow up

Conclusion: Crossed aphasias may not be as rare as was previously thought. The brain Ct scan revealed that the infarct is not always in the right hemisphere. More work is needed on the language area.

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1273

WFN15-0752

Stroke

Safety and efficacy of post stenting balloon dilatation in extracranial carotid and vertebral artery stenosisM. Elmahdy^a, S. Chebel^b, F. ALKHAMIS^c, W. IBRAHIM^d. ^a*Neurology, Cairo University, Cairo, Egypt;* ^b*Neurology, Saad Specialist Hospital, Alkhobar, Kingdom of Saudi Arabia;* ^c*Neurology, Dammam University, Alkhobar, Kingdom of Saudi Arabia;* ^d*Radiology, King Hamad University, Manama, Bahrain*

Background and purpose: To evaluate the clinical and radiologic findings after carotid and vertebral artery stenting (CAS) with post stenting balloon dilatation.

Methods: A retrospective study from January 2012 to January 2015, a total of 19 consecutive patients underwent stenting for extracranial carotid and vertebral artery stenosis. Stenting was performed with post-stenting balloon dilatation. Procedural complications and mid-term outcomes were analyzed.

Results: Nineteen (19) patients were included. The mean age was 67.6 years (54-80 years), sex ratio male female was 2.8 (14 male, and 5 female). History of hypertension, diabetes, or dyslipidemia was recorded in 89 % (17/19); combination of at least 2 risk factors was recorded in 89 %, and 54 % (10/19) of patients had combinations of the three risk factors.

Extra-cranial stenosis was symptomatic in 16 patients (84%). It involved carotid arteries in 15 patients (79%), and vertebral artery in 4 patients (21%). The mean stenosis severity was 79% (50 to 90 %); it was an ulcerated stenosis in 2 patients.

All patients undergo angiography with stenting, and 18 (95%) of them had had additional post stenting stenosis dilatation. After the

stenting procedure the mean duration of hospitalization was 8 days (1 to 28 days). 52% (10/19) had had mean hospitalization duration less than 7 days. Only 1 patient had regressive hemiparesis after postprocedure.

In all patients no recurrence or complications were recorded after 3, 6, and 12 months of follow-up.

Discussion and conclusion: Angioplasty and stenting have a low rate of periprocedural stroke or transient ischemic attack. Post stenting stenosis dilatation was not associated with increase in the rate of immediate or long term complications, and need to be considered for all patients undergoing stenting.

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1274

WFN15-1396

Stroke

Role of nr2 and myeloperoxidase in the progression of cognitive impairment in patients with vascular dementiaK.I. Farrakhova, E. Solovyeva, O.A. Baranova, A.V. Chekanov, A.N. Karneev, A.I. Fedin. *Neurology, Russian national research medical University name of N.I.Pirogov, Moscow, Russia*

Standard use of certain biomarkers with potential diagnostic and prognostic capabilities could significantly improve the therapeutic outcome in patients with vascular diseases of the brain. In the literature there are sufficient data on the role of NR2 peptide and the enzyme myeloperoxidase (MPO) in the development of neuronal injury. It remains unclear whether these biomarkers be factors that reflect current and progression of cerebral ischemia

Methods: The study included 85 patients with varying degrees of vascular dementia (mild, moderate, severe). Number of MPO (Human MPO BMS2038INCT) and protein NR2ab (BIOTECH, INC, Cat№: GDI-001) was determined by ELISA.

Results: The analysis showed that severity of vascular dementia is not in direct link with concentration of NR2 protein in blood, thus concentration of MPO characterizes process progressing. And size χ^2 has the maximum value in "extreme" points: in control group and in group of the expressed vascular dementia. Lack of direct link between quantity of NR2 and weight of a state suggests an idea of a possible inaccuracy of a hypothesis of the autoimmune cascade at brain ischemia. It is known that neutrophils besides production of active forms of oxygen, possess phagocytic function. Perhaps, at violation of a blood-brain barrier the fragments of NMDA of a receptor which got to blood are removed the phagocytosis? Indirectly it is confirmed by high value χ^2 in the heaviest stage of a disease. Lack of reliable distinctions of concentration of MPO in groups of patients with easy and moderate degree of vascular dementia testifies in favor of an important role of a chronic inflammation in progressing of ischemia of a brain and possibility of use of MPO as potential predictive biomarker.

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1275

WFN15-1236

Stroke

Hospital mortality in acute ischemic stroke according to etiology in Clínica Alemana de Santiago cerebrovascular disease registry (recca): 2003-2014A. Valdivia, A. Prat, J.M. Fernandez, V. Olavarria. *Neurology, Clínica Alemana - Universidad del Desarrollo, Santiago, Chile*

Background: Mortality of acute ischemic stroke (AIS) varies between 6 to 14%. However, it changes depending the etiology.

Stroke of undetermined etiology has the highest mortality, followed by cardioembolism subtype, as was shown in PISCIS project. In many studies, cardioembolism subtype has been raised as an independent predictor of mortality.

Objective: To determine hospital mortality in AIS by etiology in our registry.

Patients and Methods: All patients with AIS admitted between 2003-2014 from our prospective registry were included. Hospital mortality was compared by etiology according to TOAST classification, using chi-square test and 0.01 level of significance. RECCA has IRB approval.

Results: A total of 1671 patients were included, 46% women. Hospital mortality was 4.8% (n = 77). Stroke of undetermined etiology with incomplete study had the highest hospital mortality with 12.2% (n = 35), followed by undetermined with two or more causes 5.3% (n = 3). Isolated causes with major hospital mortality were cardioembolism 5.1% (n = 25) and large-artery atherosclerosis 3.8% (n = 8). Both small vessel occlusion and cryptogenic etiologies had lower hospital mortality compared to cardioembolism etiology (p = 0.01).

Conclusion: The highest hospital mortality was observed in undetermined group with incomplete study. This could be due to disease severity, without giving time to perform related tests. As a single cause, cardioembolism etiology had the highest hospital mortality. This reminds the importance in prevention programs to treat and diminished risk factors associated with this stroke subtype.

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1276

WFN15-1443

Stroke

Cervical arterial dissection registry (disecas). Long term recurrence and functional outcome

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Background: The incidence of Cervical Artery Dissection (CAD) is 2.6 per 100,000 habitants, causing 2% of all strokes and 25% of those occurring in patients under age 45. Case-fatality is less than 5% with a good functional outcome described in 75% of cases.

Objectives: To determine functional outcome and long term recurrence in patients with CAD.

Method: This is a descriptive single center study from a prospective registry that included the period of time between the years 2011 and 2015. Modified Rankin scale (mRS), and the EQ5D quality of life scale was used as functional outcome. We evaluated the recurrence rate and EQ5D using logistic regression analysis including stroke or TIA, age and gender as variables. Ethics committee approved this registry.

Result: 70 patients were included in the DISECAS registry, 59 (84.2%) completed the follow up, 1 (1.4%) died during hospitalization and 10 (14.2%) were lost on follow up. Mean age was 41,1 years (SD 8.9) and 54.2% were women. Mean follow up was 730 days (SD 385). 86.4% demonstrated a mRS of 0, 10.2% a mRS 1, and finally 1.7% had a mRS 2 or 3. For the quality of life scale 45.8%, 30.5%, 13.6%, 8.5% and 1.7% of the patients demonstrated an EQ5D of 5, 6, 7, 8 and 9 points respectively. Recurrence was observed only in 3 patients (4.2%). Age, gender, stroke or TIA did not significantly affect recurrence, functional outcome or quality of life.

Conclusions: CAD has a good prognosis and recurrence is infrequent.

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1277

WFN15-0758

Stroke

Hyperhomocysteinemia affects the stroke severity and the risk of disabling deficit in non-cardioembolic stroke in young adults

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Background: Homocysteine action in the ischemic stroke (IS) development remains unclear, especially in young adults, where the role of metabolic disorders is more significant.

Aims: The study aims to determine the effect of hyperhomocysteinemia on the stroke severity and the risk of disabling neurological deficit in non-cardioembolic stroke in young adults.

Design: This is a blinded, randomized study, which enrolled 50 young patients (18-45 years) with non-cardioembolic IS and the control group of 40 patients (46 years and older) with non-cardioembolic IS. Neurological deficit was assessed using NIHSS and mRs scales. Monitoring median was 3 years, evaluation interval was 3 month.

Outcomes: Recurrent stroke, TIA, myocardial infarction, persistent disabling deficit (mRs score ≥ 3 unchanged during 6 month).

Results: Regression analysis of data obtained from 50 patients showed that homocysteine level independently affects NIHSS score ($R^2 = 0.75$, $p < 0.05$) in stroke acute phase, but only in young adults. ROC-curve and logit-regression analysis showed that in young patients homocysteine level over 13.22 mmol/l in the stroke acute phase is a predictor of mRs score ≥ 3 in 3 month after stroke (OR = 1.9, 95% CI 1.2-6.1, sensitivity 95.8%, specificity 71.4%, $p < 0.05$).

Conclusion: Homocysteine affects the non-cardioembolic IS severity and predicts the disabling deficit in stroke sub-acute phase, but only in young adults. The aim of the future researches should be to determine the effectiveness of B-vitamin supplementation in secondary stroke prevention in young adults.

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1278

WFN15-0922

Stroke

Clinical practice and decision making in as

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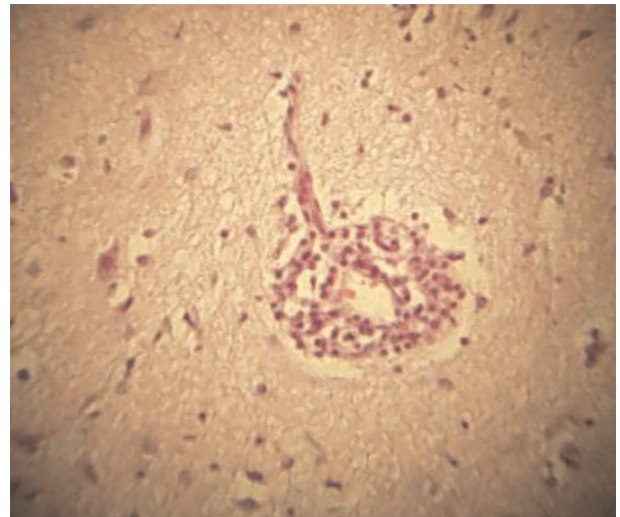
Background: Seric and urinary markers are increased in Acute Strokes (AS) and Chronic Cerebrovascular Diseases (CCVD) compared to Other Neurological Diseases (OND) (intergroup variability). No significant fluctuations were found within each group of patients at repeated measurements (intragroup unvariability).

Objective: The aim of our current study is to evaluate the predictive values and the correlations with clinical, echographic and radiological findings.

Patients and Methods: So far, we recruited 129 OND, 398 CCVD, 483 AS. We classified them in subgroups according to the severity of neurological and heart dysfunctions.

Results: The most significant alterations of cardiac and urinary markers were detected in AS in class III/C, IV/C and IV/D of New York Heart Association / American Cardiology Association scales, especially in cases with concomitant CCVD, and in unstable CCVD. No significant *intragroup* differences were found at repeated measurements. CRP, Tro tns, NT-pro-BNP, proteinuria had predictive values. Correlations were found with CHAD2DS2VAsc, HAS BLED, Hachinski, Apache, Glasgow Coma Scale, Glasgow Outcome Scale, Modified Rankin Scale, echocardiographic parameters, Simplified Pulmonary Embolism Severity and Pulmonary Embolism Severity Indices.

Conclusions: Our data highlight important features within the same category of AS accounting for worst outcomes, restricting therapeutical effectiveness, prolonging hospitalization and predicting bounce backs, above all in patients affected with CCVD and severe cardiac dysfunctions. While more sophisticated radiological techniques may show a continuum from physiological to subtle pathological conditions, the other parameters allow early identifying and treating emergencies. Computerized modeling would monitor decision making and better define the burden, reversibility and lesional load of cerebrovascular disease.



Brain Biopsy: Mononuclear inflammatory elements around small vessels.

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1279

WFN15-1053

Stroke

Neurosjögren and antiphospholipid syndrome: a case report

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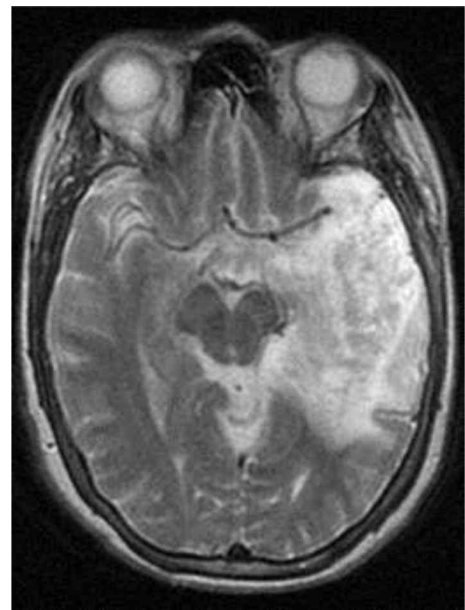
Background: Sjögren's syndrome is an autoimmune chronic systemic disease, characterized by lymphocytic infiltration of exocrine glands, and exceptionally affects nervous system.

Objective: To describe a case of Sjögren, with CNS initial manifestations.

Patient and Methods: A 38 years old, Wichi ethnicity, female, admitted with generalized tonic-clonic seizures, continuous partial epilepsy in upper limbs and right eye blindness of sudden onset. MRI shows hiperintense brain lesions, in T2 and FLAIR weighted secuencias, with heterogeneous enhancement after contrast. Laboratory: Presence of Anti-SSA/ Anti-SSB, presence of lupus anticoagulant and antiphospholipid antibody, Schirmer test was positive, salivary gland and brain biopsy were performed, fulfilling diagnostic criteria for Sjögren's disease and antiphospholipid syndrome. Central retinal vein thrombosis was diagnosed. Patient signed the informed consent.

Results: We highlight features of onset, with inconspicuous clinical sicca syndrome, despite a considerable neurological involvement. Good clinical and imaginological outcomes were achieved after glucocorticoids, cyclophosphamide, antiepileptic and anticoagulants therapy.

Conclusion: This presentation underlines the importance of suspecting this pathology in young patients with vascular and CNS compromised. We emphasized the requirement biopsy before any therapeutic approach to obtain a certain diagnosis.



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1281

WFN15-1445

Stroke

Platelet-endothelial cell interaction in brain microvessels of angiotensin II type 1 receptor knockout mice following transient bilateral common carotid artery occlusion

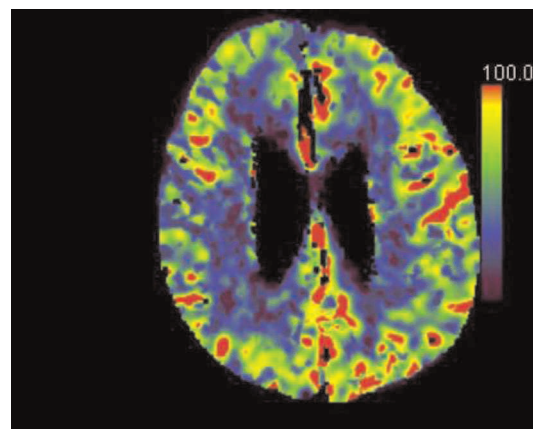
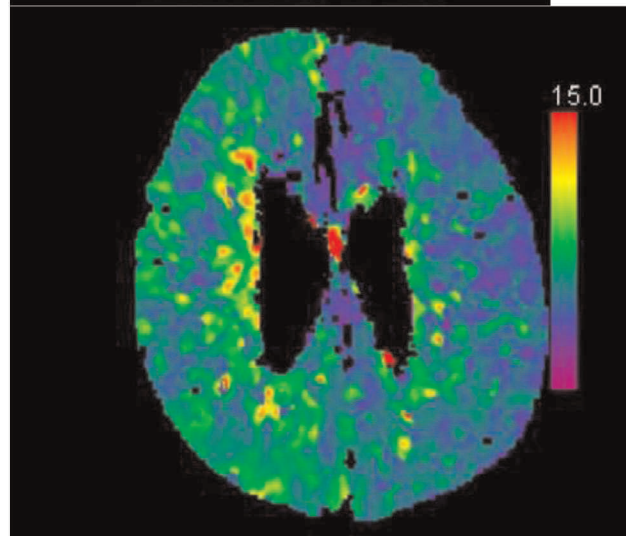
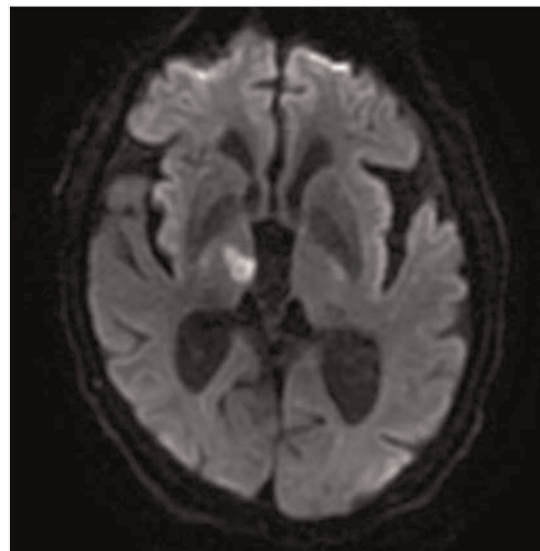
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Introduction: The purpose of this study was to investigate the behavior of platelets (rolling and adhesion) in cerebral microvessels of angiotensin II type 1 receptor-knockout (AT1RKO) mice after transient bilateral carotid artery occlusion using intravital fluorescence microscopy.

Methods: Ten AT1RKO mice, consisting of 5 mice in the ischemia reperfusion group (reperfusion after 15 min of bilateral, total carotid artery occlusion as control group) were used in this study. The hole traversed the bone and dura mater, but arachnoid, pia mater, and cerebral parenchyma were preserved. Platelets were harvested from donor mice and stained using carboxyfluorescein diacetate succinimidyl ester.

Result: The number of platelets showing rolling and adhesion to pial vessels in AT1 deficient mice at 3 and 6 h after cerebral ischemia reperfusion was lower than that in the control group.

Conclusion: Platelet rolling and adhesion after cerebral ischemia reperfusion in pial vessels of AT1RKO mice was lower in the control group than in the sham group. In addition, AT1 receptor has an inhibitory role in platelet rolling and adhesion after cerebral ischemia reperfusion.



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1282

WFN15-1585

Stroke

Thalamic neglect through mechanism of cerebral diaschisis in a patient with thalamic infarct

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A 76-year old right-handed gentleman was assessed in A&E after experiencing transient diplopia, left-sided weakness and slurred speech. His past medical history was significant for hypopituitarism on hormone replacement, but no cardiovascular risk factors. He was functionally independent and exercised regularly. On examination, he was drowsy, but easily rousable; he displayed gaze preference to the right, had left facial weakness, left arm drift with reduced power in left arm and leg. There was profound visuosensory neglect affecting the left side. His National Institute of Health Stroke Score (NIHSS) was 7.

Unenhanced CT and CT Perfusion of his brain were performed, which did not demonstrate an expected large territory infarct, however showed reduced perfusion across the bulk of the right hemisphere in a non-vascular territory. He received thrombolysis on clinical grounds for presumed right middle cerebral artery infarction. A remarkable improvement was observed the next day with a NIHSS of 0. He did complain of memory loss.

MRI performed the next day only demonstrated a DWI-positive lesion in right medial thalamus, consistent with a right posterior cerebral artery territory infarct.

The most likely explanation of this gentleman's presentation we think is a posterior circulation thrombus that has made it's way through posterior circulation, causing transient diplopia, unilateral weakness and culminating in a thalamic stroke. The plethora of anterior circulation signs could be explained by the phenomenon of diaschisis, affecting the entire right hemisphere. This is demonstrated by the CT Perfusion performed in the acute phase.

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1283

WFN15-0122

Stroke

Intravenous thrombolysis in cerebral infarction (CI) in Uruguay

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Background: Although intravenous thrombolysis is the most effective treatment for Cerebral Infarction (CI) it is under used in Uruguay

Objective: To report the largest registry of intravenous thrombolysis for CI in Uruguay.

Material and Method: Descriptive retrospective design. Population: Patients with thrombolized CI in the Stroke Unit (SU) of Clinicas Hospital, Montevideo from 1/7/2010 to 1/8/2014.

Results: 53 patients thrombolized. Average age: 66; Oxford Classification: TACI 34%, PACI 32%, LACI 26%, POCI 8%; NIHSS at admission and discharge: 11 (3–24) and 3 (0–20). Etiology (TOAST): Cardioembolism 38%, Large Vessel Atherosclerosis 19%, Undetermined-negative evaluation 13%, Undetermined- incomplete evaluation 13%, Small vessel disease 11%. Symptom onset-to Needle and Door-to-Needle average time: 170 and 79 minutes respectively. Average stay in SU: 5 days. Complications: No complications: 70%, Asymptomatic intracranial hemorrhage (ICH): 13%, Symptomatic ICH: 11%, Systemic bleeding: 2%. Hospital mortality: 18.9% (80% Total MCA infarction, NIHSS average: 17). Causes of Death: Complications related to thrombolysis: 3 (Symptomatic ICH); Not related: Aspirative Pneumonia: 3, Sepsis: 3, Not reperfused total MCA infarction: 1. Incorporating SU neurology guard in the final seven months of the study quadrupled the average monthly thrombolysis and significantly decreased the door to needle time and complications (symptomatic ICH 3.3% vs 11%). At 6 months: 72% no or minor disabilities by Rankin 0-1; and 70% Barthel > 95. Survival at 36 months: 70%.

Conclusions: Most patients with good outcome. Complications and times comparable to international data. Mortality mainly unrelated to treatment. The results were markedly better with the implementation of SU neurology guard.

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1284

WFN15-0262

Stroke

Stroke care organization in public health of Montevideo, Uruguay

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Background: The organization of stroke care is essential to achieve the best clinical outcome and cost-effective measures.

Objective: To describe the process of organization in stroke care in the public health of Montevideo and to report results from the first year of operation.

Materials and methods: Prospective description of the first year performance of this system in Montevideo from 10/03/2014 to 09/03/2015.

Results: In accordance with the Ministry of Public Health and Medical School of Public University, public health of Montevideo was geographically divided into two Stroke Centers (250.000 users each). Educational courses to the population and prehospital care services were performed.

A guard of neurology 7 x 24 h with Stroke Unit (SU) was established in one of the centers (Hospital de Clínicas {HC}). In the period, 172 patients were admitted to the HC, 97 in its SU. The number of patients in the SU was doubled compared to the previous year.

SU patients mortality was 4 times lower compared to general ward (5.2 and 22.6%).

The average hospital stay was reduced by 4 days.

Admission to intensive care unit was reduced from 13.3 to 3.10%.

Intravenous thrombolysis rate increased by 310% compared to previous year, with symptomatic intracranial hemorrhage rate of 3.2%.

Conclusions: With this organization model, there was an increase in the number of patients benefiting from attention in SU and intravenous thrombolysis.

There was an improvement in patients outcomes and cost indicators, such as admission to intensive care unit and length of in hospital stay decreased.

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1285

WFN15-0790

Stroke

Lacunar infarction (LI) in the hospital de clínicas stroke unit, Montevideo Uruguay

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Background and Objective: LI is a frequent type of stroke. We report and analyze a serie of patients with this disease.

Population and methods: Descriptive and retrospective study. Patients: LI defined by Oxford clinical classification and Computed Tomography (CT). Place: Hospital de Clinicas, Montevideo from 1/7/2007 to 1/8/2014.

Results: 198 patients analyzed. Prevalence of LI in all types of stroke: 20%.

LACI Oxford classification showed a positive predictive value (PPV) for LI in CT of 87%.

Median age: 66 yo, male 47%. NIHSS at admission and discharge respectively: 4 (0-18) and 2 (0-13). Higher NIHSS was associated with higher systolic blood pressure (SBP) or DBP ($p = 0.016$). Type of lacunar syndrome: Pure motor: 55%; Sensorimotor 31%; Ataxic hemiparesis: 3%; Pure sensitive: 2%; Dysarthria/clumsy hand: 1.5%, Others: 7.5%.

Etiology: Small vessel disease (SVD) alone: 65%; Association with: ipsilateral carotid atherosclerotic plaque >70%: 11% and High risk cardioembolic source: 13.5%.

CT localization: Internal Capsule (IC) rear limb: 23%, Lenticular: 13%, Deep cerebral white matter: 10%, Thalamus: 8%, Caudate nucleus: 3.5%, IC anterior limb: 3%, IC knee: 3%, Pons: 2.5%, Cerebellum: Associated asymptomatic SVD: 39%.

No hospital stay complications: 83%; Dysphagia: 21%. Aspirative pneumonia 8.6%. Hospital mortality: 2.5%.

Conclusions: Prevalence, clinical presentation and topography was similar to previous reports.

Oxford classification was a good predictor of LI in CT.

Elevated blood pressure levels were associated with greater clinical severity.

SVD alone was the most prevalent etiology but there was an important degree of association with large vessel atheromatosis and cardioembolic source.

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1286

WFN15-1255

Stroke

Report of 4 cases of acute basilar thrombosis treated with IV rTPA in hospital de clínicas stroke unit, Uruguay

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Background: Stroke is the second cause of death and first cause of disability in Uruguay. Acute basilar thrombosis is one of the most

severe clinic presentation of ischemic stroke, with high morbidity and mortality. Intra venous thrombolysis is a well recognised and effective treatment in acute stroke.

Objective: To describe 4 cases of acute basilar thrombosis treated with intravenous rTPA.

Patients and Methods: Review of medical protocol records of the stroke unit of the Hospital de Clínicas, Montevideo Uruguay between march 2014-2015.

Results: In a total of 73 patients thrombolysed, three men and one women, aged 61 to 77, presented acute basilar thrombosis treated with rTPA (5,5%). All the patients presented oculomotor and cerebellar signs and limb motor weakness. The symptom onset to door time was between 60 to 180 minutes and door to needle time was between 30 to 105 minutes. All the initial CT scan were normal. All patients received intravenous rTPA (0.9 mg/kr) with the stroke unit inclusion and exclusion criteria protocol. Initial NIHSS were 6 to 28 and hospital discharge NIHSS were 3 to 8. All patients had 0 to 1 modified Rankin scale score at hospital discharge. No complications were recognised.

Conclusion: Acute basilar thrombosis, a severe entity with high mortality, was treated effectively and safely with intravenous thrombolysis showing good recovery and prognosis in our 4 cases.

doi:10.1016/j.jns.2015.08.1346



Figure - T1 Hyposignal of superior sagittal sinus.

Figure. T1 Hyposignal of superior sagittal sinus.

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1287
WFN15-1392

Stroke
Cerebral venous thrombosis: prospective study of 13 cases in Senegal

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Background: Cerebral venous thrombosis (CVT) is characterized by clinical and etiological polymorphism. In Africa, few studies have been carried on CVT.

Objective: This study aimed to determine the epidemiological, clinical, radiological and etiological features of CVT.

Patients and methods: This was a prospective study on 13 patients with the diagnosis of CVT, established on the basis of clinical and radiological criteria at the Neurology department of Fann teaching hospital.

Results: Thirteen patients were collected. The average age was 35 years [18-56] with a female predominance (10/13). Onset was subacute in 10 patients. The main clinical signs on admission are shown in Table. Brain MRI and CT-scan were realized in 2 and 11 patients respectively. Thrombosis of the superior sagittal sinus was the most common (7 patients), followed by thrombosis of the right and transverse sinus (3 cases each). Involvement of several sinus was found in 4 patients. Parenchymal lesions were bleeding and brain swelling.

Conclusion: CVT is not uncommon in Senegal. It mainly affects young women of childbearing age and causes are dominated by loco-regional infections. A multicenter study over a longer period is necessary.

Table
Clinical features.

Symptoms and signs	No. of cases
Headache	11
Ocular signs	5
Fever	5
Seizures	4
Focal motor deficits	2
Mental status disorders	2

1288
WFN15-0378

Stroke
Prevalence and radiological peculiarities of metabolic syndrome and hypertension in stroke patients

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Background and Purpose: Hypertension, obesity and diabetes (metabolic syndrome) are significant risk factors of stroke. A better understanding of relation between metabolic syndrome and hypertension may lead to the reduction of cerebrovascular risks and improve the stroke treatment and outcome as well.

Methods: A total of 345 (F = 198, 69,7 ± 5,3) patients with acute stroke were investigated. Diagnosis of Metabolic syndrome (MetS) was ascertained according to the revised National Cholesterol Education Program Adult Treatment Panel III (ATP III-r). Stroke was diagnosed using NIHSS criteria. Type, side and site of stroke was assessed by MRI. Hypertension (HYP) was defined according to cardiovascular criteria, based on target organ damage. In addition to hypertension, other modifiable and non-modifiable risk factors were recorded. Neuropsychological battery and MMSE tests were performed in the target population. The data statistically evaluated by SPSS-11.0.

Results: Among Stroke patients 124/35,9% found to have MetS, 106/85,4% diagnosed as ischemic stroke with lacunar or multiple brain lesions. Most of the patients with female preponderance (76) had moderate to severe leucoaraiosis (71%), mild-to moderate cognitive disturbances (54%) and dementia (14%). The HYP and obesity alone - 146/42,3% patients had more haemorrhagic stroke (79/54,1%) with male dominance and psychological disturbances, such as depression (46%) or depression-anxiety disorders (31%).

Conclusions: MetS may be considered as independent risk factor for ischemia and dementia (P > 0.001), while the Hypertension and obesity alone may carry the risk of bleeding and neuropsychological disturbances (P > 0.001).

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1290

WFN15-1525

Stroke

Retrospective registry of cerebrovascular disease in a private third level referral academic hospital (Fundación Clínica Medica Sur ®) in Mexico City

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Background: Cerebrovascular disease (CVD) is an example of the impact of an epidemiological transition that threatens to overwhelm health systems. In Mexico CVD has become the third leading cause of death in those aged 65 years and older.

Objectives: To describe the epidemiology, diagnostic, therapeutic approaches and outcomes of patients admitted to our hospital.

Patients and Methods: It's an observational retrospective study. Data was collected through a systematic research in our electronic database, analyzing patients with discharge diagnosis of CVD from January 2010 to November 2014.

Results: There were 453 CVD cases; mean age 66.4 years, 51.7 % males. Ischemic CVD (ID) account for the 71% of cases, hemorrhagic CVD (HD) 29%. Etiology of ID was based in the TOAST classification. Rtpa venous thrombolysis (VThromb) was used in 14.9% of patients, in situ arterial thrombolysis (AThromb) in 3.1% with a median age of 64 years for both strategies and 114 minutes for the beginning of the VThromb (complications 22.9%, mortality 10.4%) and 150 minutes for AThromb (60% rate of complications and mortality). Patients with HD required interventional strategies in 27.4%, surgery treatment 10.7%. Median time of hospitalization was 6 days with overall complications of 19.2% and 10.8% mortality (5.5% ID and 5.2% HD).

Conclusions: Clinical presentation and risk factors in our population were similar to previous series. Thrombolysis was frequent; with a high rate of complications in arterial thrombolysis. We can use this data to create a prospective registry, taking into account the opportunity areas showed by this study, and to compare ourselves with other referral centers.

1. I have obtained patient and/or Institutional Review Board (IRB) approval, as necessary.

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1291

WFN15-0741

Stroke

Anti-mullerian hormone and stroke prevention

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Increased stroke frequency in postmenopause associated with reduced estrogen protection vessels resulting physiological ovarian aging. The premature ovarian aging before menopause, on the background of the continuing need for estrogen, is an additional risk factor for vascular events.

We have evaluated dynamics of reduction Anti-Mueller hormone (AMH) compared with levels of estradiol (E) and follicle-stimulating hormone (FSH) in 29 premenopausal women with essential hypertension (EH).

Determined by dynamics of AMH, FSH, E every 3 months for 18 months was also evaluated the severity of climacteric symptoms of Menopause Rating Scale and indicators of blood pressure (BP).

The reducing AMS more than 10 times in 3 months occurred in 17.24% of cases (5 patients). In these patients reduction of AMH from $0,723 \pm 0,0023$ ng /mL to $0,069 \pm 0,0031$ ng /mL ($p < 0,05$) on average for 1.5 months preceded the appearance of early menopausal symptoms.

It should be noted that the severity of vasomotor menopausal symptoms such as hot flushes, heart discomfort and sleep problems was positively correlated with episodes of rise in BP probably due to their synergistic influence ($rMRS - \uparrow BP = 0,672$).

Conclusions: Reduced AMH more than 10 times over 3 months is preclinical criteria of premature ovarian aging in premenopause. AMH controls in premenopausal patients with EH will allow time to reveal and correct ovarian hypofunction to save estrogenic protection of vessels and for the prevention of menopausal syndrome, worsening EH - one of the most important risk factors for stroke.

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1292

WFN15-1462

Stroke

Surfer's Myelopathy: two case reports in Chile and a literature review

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Background: Surfer's Myelopathy is still a poorly-known condition. Its etiology and pathophysiology are not known.

Objective: Present two case reports in Chile and propose an etiological cause.

Case Report 1: 20-year old male patient without previous medical history, suffers sudden lower back pain, followed by paresthesia in both lower extremities, during his first surfing lesson. Examination revealed hypotonic paraplegia, areflexia and a multimodal sensory deficit with an sensitive L1 level. MRI showed a 'pencil-like' ischemic medullary lesion from T7 to the conus. Spinal angiography showed dissection of L2 left radicular artery. The patient did not respond favorably to treatment and was discharged with complete paraplegia.

Case Report 2: 32-year-old man with no previous medical history. During a surfing lesson, he complained of lower back pain followed by weakness in both lower extremities. Physical examination revealed flaccid paraparesia with a sensitive T12 level. MRI showed an ischemic medullary lesion, from T8 to the conus. Angiography showed a dissection of left L2 radicular artery. The patient, after treatment, was discharged asymptomatic.

Results: In both cases, radicular artery dissection was established. We propose this as an etiological cause probably produced by an abrupt movement: from lying on the surfboard to standing up, with hip hyperextension on one side and flexion on the other. The angiography findings in both our cases support this theory.

Conclusion: We propose radicular artery dissection as the etiological cause of Surfer's Myelopathy.

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1293

WFN15-1208

Stroke

Serum and urine clusterin levels are elevated in stroke patients

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Background: Clusterin (CLU) is an ubiquitous glycoprotein highly expressed in the brain. It exists as intra and extracellular (or secretory, sCLU) isoform. The sCLU, supposedly pro-survival, undergoes local upregulation upon acute stroke. We made the hypothesis that sCLU tissular increase after stroke would be measurable in patients' blood and urines.

Objective: This preliminary clinical observational trial aimed at measuring the sCLU concentration in blood (SsCLU) and urines (UsCLU) of patients with acute stroke (<24 hours) and studying possible determining factors.

Patients and Methods: Stroke patients (SP) and non stroke patients (NSP) admitted in the ER of the Sion hospital (Switzerland) were included. Levels of SsCLU and UsCLU were studied in relation with clinical scores (NIHSS and mRS), imaging (stroke location, penumbra, arterial atheromatous plaque), blood thrombotic and inflammatory markers (including apolipoprotein A1, B and serum amyloid A).

Results: In total, 33 SP and 12 NSP of comparable age (~70 y, $p = 0.86$) were selected. Serum sCLU tent to be higher in SP than in NSP (Mean (SE): 395 (17) $\mu\text{g/ml}$ versus 311 (14) $\mu\text{g/ml}$; $p = 0.008$); the same for UsCLU (172 (38) $\mu\text{g/ml}$ versus 53(16) $\mu\text{g/ml}$; $p = 0.055$). High SsCLU levels predominated in infratentorial and in small supratentorial strokes; seemed to be more frequent in SP with penumbra, cortical lesions and non calcified plaque, but not related to better functional outcome or pathological thrombotic and inflammatory factors.

Conclusion: Stroke patients had higher blood and urine sCLU than non stroke patients and this increase seemed related to some lesional but not clinical or biological factors.

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1294 WFN15-1579 Stroke

Ischemic stroke outcomes in Oman: experience of a university-hospital based stroke registry

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Background: Rising incidence of stroke is well recognized in many developing countries. Few studies have explored stroke outcomes in Omani population.

Aim: To study ischemic stroke (IS) outcomes in Oman and compare them among stroke subtypes.

Methods: Records of adult patients (>18 yrs) with IS from a Stroke Registry (2009-14) at a university teaching hospital were reviewed for: demographics, stroke type(TOAST), NIHSS, sensorium, risk factors, imaging findings, treatment received and outcome at discharge and follow-up (using modified Rankin Score). Factors influencing outcomes were analyzed using univariate and multivariate methods.

Results: Of 400 patients (age: 64 ± 13 yrs; M:F::1.8:1), 279(70%) had first stroke, and 30% recurrent stroke. 167(42%) had large artery stroke, 97(26%) lacunar, 52(13%) cardioembolic(CE) and 84(16.5%) stroke due to other causes. Risk factors included: Hypertension

290(72.5%), Diabetes mellitus –216(54%), Ischemic heart disease (IHD) – 75(19%), Atrial fibrillation(AF) – 50(12.5%). 40(10%) received tPA, of whom 37% improved. Good outcome was observed in 160(40%). Poor outcome in 240(60%) patients was associated with recurrent stroke, large artery or CE stroke, NIHSS > 6, GCS > 8, AF and IHD ($p = 0.03$). Factors independently influencing IS outcome were recurrent stroke, poor sensorium and NIHSS ($p < 0.01$). 43(11%) died at discharge; highest mortality was in CE stroke.

Conclusions: Ischemic stroke in Oman reflects the high morbidity/mortality seen in most communities in the region. Characteristics of incident stroke – eg. stroke recurrence, type, severity and cardiovascular comorbidity are likely the major determinants of stroke outcome. While acute stroke care has improved significantly in Oman, development of stroke units, rehabilitation services need to be addressed.

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1295 WFN15-1304 Stroke

Age of stroke onset in men and women in the last 17 years: results of the RECCA registry

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Background: Stroke is a relevant public health problem, in Chile represents the first cause of death. PISCIS is the only population-based study conducted between 2000 and 2002, in Iquique, Chile. In order to guide public health policies, population studies are needed. The aim of our study is to describe the age of stroke onset during the last 17 years in a single clinical center in Santiago.

Patients and Methods: RECCA is a prospective single center registry including all consecutive patients admitted with an acute stroke in Clínica Alemana, Santiago, Chile, from 1998 to 2014. We analyze age of stroke onset by years in total and by gender. Means were compared with ANOVA test for inequality of population years means. This study has appropriate ethics committee approval.

Results: Total of 1644 patients were included, 757 (46%) women and 889 (54%) men. The mean age in total group was 70.4 (SD) years, 72.2 (SD) in women and 68.9 (SD) in men. The overall mean age varied between 65.2 to 74.0 and 65.7 to 76.6 in women through the years. ANOVA for inequality of population years means was $p = 0,0062$ for overall, $p = 0,009$ for men, $p = 0,2013$ for women.

Conclusions: Mean age of patients with acute stroke has not changed in men but has increased in women in the last 17 years. This could be due to an increase in cardioembolic strokes during this same period of time.

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1296 WFN15-0364 Stroke Hyperbaric oxygen therapy in chronic ischemic cerebral stroke

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Background: Hyperbaric oxygen therapy (HBOT) has been applied in the treatment of cerebral vascular diseases since the 1960s.

Objective: To evaluate the value of HBOT for Ischemic Cerebral Stroke, after at least one month from the onset.

Material and methods: This prospective study was conducted on 80 patients (aged 40–70 years) with ischemic cerebral stroke at least one month prior to inclusion. All patients signed a written informed consent. Thorough history taking, physical and neurological examination, and neuroimaging studies of the brain were carried out. Patients were randomly assigned to either one of two groups; A study group (n = 50) received 40 HBOT sessions (5 sessions per week) in addition to conventional therapy, and control group (n = 30) receiving only conventional therapy. All patients were subjected to thorough history taking, neurological examination and assessment for fitness of HBOT. Neurological Functions were evaluated by modified Ashworth scale, and modified Rankin scale at baseline, after 4 and 8 weeks of inclusion.

Results: There was a significant difference in the mean change of Ashworth score from baseline to 4th week of the studied patients compared to the Control ($p < 0.001$), and from baseline to 8th week of the studies patients compared to the control group ($p < 0.001$). There was a significant difference in the mean change of the modified Rankin score from baseline to 4th week of the studied patients compared to the control ($p < 0.001$) and from baseline to 8th week of the studied patients compared to the control ($p < 0.001$).

Conclusion: Both groups attained clinically significant improvement, however more apparent in the study group compared to the baseline, and to correlate this to the presence of HBOT, a further study of patients after attaining a state of Neurological stability is recommended.

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1299

WFN15-0750

Stroke

The great Chilean earthquake and their effect on stroke mortality

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Background: Although Chile is one of the most seismic countries in the world the impact of large earthquakes on mortality from cerebrovascular diseases (CVD) is unknown.

Objectives: To estimate the impact of the mega-earthquake of February 27, 2010 (27 F) on mortality from CVD.

Methods: We retrospectively analyzed the deaths from CVD (ICD-10: I60–I69) of the six regions affected by 27 F which concentrate 80% of the Chilean population, from the Official Register of Deaths of Chile. We estimated the risk of dying from CVD in the short-term and long-term depending on the intensity of the quake measured by the Mercalli-scale using a Poisson regression model. The short-term model included weekly deaths from mid-January to mid-April between 2008 and 2011. The long-term model considered deaths after the 27 F and for the full year 2010 compared to the years 2008 to 2011. We have obtained IRB approval.

Results: The regions of Maule and Biobío who suffered the highest intensity earthquake had a risk of death from cardiovascular disease in the post-27 F week of 1.41 (95%CI 1.04–1.92) times the period without earthquake. In the long-term the two groups of regions that had the highest intensity earthquake had relative risk of 1.08 (95%CI 1.03–1.15) and 1.10 (95%CI 1.06–1.14) respectively compared to a year without earthquakes.

Conclusions: The 27 F earthquake had a significant short and long-term effect in CVD-mortality. This shows the need to prepare the

community and health systems for priority CVD care and control of their risk factors after a disaster of this magnitude.

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1300

WFN15-0649

Stroke

Sonolysis in prevention of brain infarction during carotid endarterectomy and stenting (sonobuster): a randomized, controlled trial

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Background: Previous case series have detected silent brain infarctions in as many as one-thirds of patients after carotid endarterectomy (CEA) and in up to two-thirds of patients after carotid angioplasty and stenting (CAS). Sonolysis employs ultrasound to facilitate disruption of thrombi, and has been shown safe and effective for improving long-term outcome following acute stroke.

Objective: The aim was to examine if intraoperative sonolysis alters the risk of new brain infarction during CEA or CAS.

Patients and methods: All consecutive patients with internal carotid stenosis $\geq 70\%$ indicated for CEA or CAS were screened in this prospective study. Patients were allocated randomly to sonolysis and control groups. Neurological examination, cognitive function tests, and brain MRI were conducted before intervention and at 24 h and 30 days post-surgery.

Results: Of 487 screened patients, 121 (87 males; mean age, 66.65 ± 7.17 years) were allocated to the sonolysis group and 121 (75; 66.02 ± 8.11 years) to the control group. New brain infarctions on post-procedure MRI were significantly less frequent in the sonolysis group than the control group (31.4% of patients vs. 47.1%; $P = 0.018$). Sonolysis and CEA were identified as independent predictors of reduced infarct risk (sonolysis: OR = 0.450, [0.215–0.942], $P = 0.034$; CEA: OR = 0.208, [0.087–0.495], $P < 0.001$). Stroke or transient ischemic attack occurred in one sonolysis patient and three control patients ($P = 0.372$).

Conclusion: This study provides Class II evidence that sonolysis during CEA or CAS reduces the risk of new brain infarctions.

Registration: <http://www.clinicaltrials.gov> (NCT01591005).

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1301

WFN15-0567

Stroke

Identifying suspected ruptured aortic arch atheroma in acute ischemic stroke by 18 F-sodium fluoride positron emission tomography-computed tomography

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Background: 18 F-Sodium Fluoride Positron Emission Tomography-Computed Tomography (18 F-NaF PET-CT) is a clinically routine imaging modality used for detecting bony metastasis. We had reported the first case in literature with ruptured carotid plaque successfully identified by the 18 F-NaF PET-CT in an acute ischemic stroke patient.

Objective: Our goal is to identify ruptured aortic arch atheroma in acute noncardioembolic ischemic stroke by 18 F-NaF PET-CT.

Methods: Here we collected six patients (four female and two male) who suffered from acute embolic ischemic stroke in the left and/or right middle cerebral artery territory according to magnetic resonance imaging (MRI). Their electrocardiography (ECG) showed normal sinus rhythm and 24-hour Holter monitoring did not reveal any episode of atrial fibrillation. They received 18 F-NaF PET/CT for assessing ruptured (or vulnerable) plaques of carotid arteries and aortic arch.

Results: 18 F-NaF PET/CT showed an irregular calcified plaques in aortic arch on CT images with nearby high NaF uptake on PET, but no NaF uptake in other carotid arteries.

Conclusion: The findings of 18 F-NaF PET/CT suggested that these plaques in aortic arch might be the culprit lesions, resulting in the thromboembolism of downstream unilateral or bilateral MCA arteries.

✕ I have obtained patient and/or Institutional Review Board (IRB) approval, as necessary.

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1302

WFN15-0727

Stroke

Thrombolysis for acute ischemic stroke- improvement in performance after implementing stroke protocols

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Background: There are few studies about Thrombolysis experience from the middle East

Objective: To assess the experience of intravenous (IV) thrombolysis in patients admitted at Hamad General Hospital, Qatar.

Methods: Retrospective review of charts done for patients who received IV thrombolysis for acute stroke at HGH from January 2005 till December 2014. We collected the demographic, clinical, neuro-imaging, & outcome data.

Results: 155 patients [128 male (83%), Asians 111(72%) & Arabs 33 (21%)], mean age 53 years \pm 13 (22-84 years) were treated. Mean time of arrival 83 mins from onset (45% in an hour). Mean NIHSS at onset was 12, mean door to CT time (DCT) 35 mins, & door to needle time (DNT) was 76 minutes (<60 mins in 53%). Average length of stay 13 days (Median 7 days). Most common stroke subtype was small vessel disease (32%), embolic (29%) & large vessel disease (31%). Hemorrhagic complications in 16% (8% were symptomatic). Mean mRS \leq 2 in 42% at discharge, & 56% at 3 months. After implementing new acute stroke protocols in 2014, thrombolysis rate increased significantly (8.2% vs 5.4%). DCT reduced from 42 to 20 mins & DNT from 89 min to 51 mins, with improved outcome (mRS \leq 2 in 77% in 2014 vs 49% at 90 days). NIHSS \leq 8 & normal CT at admission showed odds of favorable outcome.

Conclusion: Thrombolysis is effective & safe in acute stroke. Identifying factors causing delay in DNT help in improving rate of thrombolysis and prognosis. Reducing DNT to < one hour is associated with favorable outcome.

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1303

WFN15-0770

Stroke

Stroke subtypes, risk factors and outcome in different South Asian community admitted with stroke at Hamad General Hospital - Qatar

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Background: International research refers South Asian (SA) region as an ethnical area, comprising of Bangladesh, India, Nepal, Pakistan and Sri Lanka. High prevalence of stroke, especially in young individuals is reported in them, which makes up the largest ethnic group in Qatar.

Objective: In this population we analyzed: stroke subtype, risk factor profile and prognosis.

Method: Our stroke database was interrogated for ethnicity, stroke subtype, risk factor profile and outcome for patients admitted between January 2014-April 2015.

Results: 582 patients were identified: 93% male; nationality: 46% Indians, 15% Bangladeshi, Pakistani and Nepali, and 8% Srilankan ($P = 0.001$). Lacunar infarcts was the most common subtype (41.5%), except for Nepalese 36% were hemorrhagic ($P = 0.003$). Mean age: Nepalese 41.3 yrs, Bangladeshi, Indian and Srilankan 48.9 yrs, Pakistanis 59.8 yrs. Known or newly diagnosed diabetes or pre-diabetes was the major risk factor in all groups, significantly higher in Bangladeshis and Pakistanis (79%), only 49% in Nepalese ($P = 0.001$). Hypertension found in 64-74%, except in Nepalese (45% newly diagnosed HTN, $p = 0.001$) and hypercholesterolemia 39-51% in all groups. Control of known co-morbidities was best in Sri Lankans (42%) and worst in Bangladeshi (31%) ($p = 0.001$). At 3 months 18% of Srilankan and Nepalese had mRS \geq 5, while across all ethnic groups mRS \leq 2 was found in 75-86%.

Conclusion: South Asians have different stroke subtypes and risk factor profile, which needs to be looked in separately where there is sufficient numbers to do so, rather than cohorting them together as a single ethnic group.

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1304

WFN15-0037

Stroke

Ischemic strokes following a viper bite (cerastes cerastes)

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Introduction: The snakebite envenomation is a therapeutic emergency. An ischemic stroke is a rare complication for probably multifactorial pathophysiology and can be life threatening.

Observation: we report the case of a female patient of 16 years old without medical history admitted to hospital five hours after a snake bite at the left hand. The review found a conscious patient hemodynamically stable, with a compartment syndrome at the left forearm that received a discharge fasciotomy. The clinical picture was complicated 48 hours later by a bilateral blindness; an acute pulmonary edema and left hemiplegia. The laboratory tests showed intravascular disseminated coagulopathy. Brain scan showed a right parietal stroke with hemorrhagic infarction and a left occipital stroke. Cardiac exploration was normal. The patient was intubated and ventilated, enjoys the antivenom administration and transfusion of 5 packed red blood cells and 6 fresh frozen plasma and was put on diuretics, antibiotics, platelet inhibitors and motor

rehabilitation. The change at 3 months was marked by the disappearance of visual disturbances, improved left hemiparesis and normalization of laboratory tests.

Discussion: Cerastes cerastes is one of vipers that cause hemorrhagic syndromes. The complications are due to the richness of venom enzymes that primarily target the hemostatic process. The combination of intravascular disseminated coagulopathy with toxic vasculitis and endothelial damage may explain the occurrence of ischemic stroke.

Conclusion: the onset of neurological signs after envenomation requires intensive monitoring. Specific immunotherapy, the only effective weapon facing the proteolytic enzymes of the venom, should be part of essential emergency drugs.

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1305

WFN15-0563

Stroke

A stroke of genius: language but no words. Tomas Tranströmer (Nobel Prize in literature 2011), in memoriam

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Introduction: In March of this year the great Swedish poet Tomas Tranströmer (Stockholm, 1931-2015) passed away. In 1990 he had lost his speech and the use of his right hand as a result of a stroke. As if anticipating his own fate, in his epic poem *Baltics* of 1974 he wrote: "Then, cerebral hemorrhage: paralysis on the right side with aphasia, / can grasp only short phrases, says the wrong words". He continued creating poems after the stroke.

Methods: This is a comparative analysis of Tranströmer's poetry written before and after the stroke which includes firsthand accounts from people like his close long term friend and fellow poet James Wine, along with films and videos pre and poststroke portraying the right hemiplegia and severe nonfluent aphasia, whilst he is expertly supported by his wife Monica (his voice to the outside World) and plays the piano left handed.

Results: Since 1954, Tranströmer has published a collection of poems every four years up to the stroke. Since then there have been only two collections of newly published poetry. A nonprolific writer before the stroke, after it he became disproportionately concentrated compared to his prestroke production, confining most of his poetry to the agrammatical and telegraphic haiku style.

Conclusions: In spite of severe non-fluent aphasia with dysgraphia, Tomas Tranströmer remarkably overcame the communication barriers imposed by a large dominant hemispheric stroke and created poetry of the highest calibre, producing language in the absence of speech according to his prestroke prophetic line: language but no words.

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1306

WFN15-0337

Stroke

Key role of insulin-like growth factor in acute ischemic stroke patients

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Introduction: In previous studies, insulin-like growth factor (IGF) is increased after hypoxic brain injury, and animal model with administration of IGF have shown reduced infarct volume. We aim to evaluate the prognostic value of IGF in acute ischemic stroke patients.

Methods: In this retrospective observational study, a consecutive series of patients hospitalized for ischemic stroke within 7 days of onset were enrolled. The NIHSS score was assessed on admission before reporting of serum IGF levels. For the assessment of functional outcome at 90 days Modified Rankin Scale was used. Serum IGF levels were determined by chemiluminescence immunoassay on admission.

Results: 213 Patients compatible with eligibility criteria were enrolled. The mean age was 67.7 ± 12.3 years. (64.6% males, median baseline NIHSS 3) Patients with an unfavorable outcomes and death had significantly decreased serum IGF-1 levels on admission ($P < 0.0001$ for both). Serum IGF levels < 105 ng/mL was as an value for unfavorable functional outcome (OR 2.07, 95% CI:1.35–4.48; $P < 0.0001$), after adjusting for other significant confounders. However, there was no relation of hormone levels to either the clinical subtype of stroke or the early neurologic deterioration.

Conclusion: This study shows that a considerable correlation between decreased IGF level and unfavorable functional outcome at 3 months. Low level of IGF may play a role in the progression of acute ischemic stroke. Limitations of this study are lack of long term follow up functional outcome after 3 months, measurement of IGF were performed once at admission, and retrospective study design.

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1307

WFN15-0581

Stroke

Stroke in India - an epidemiological overview

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Background: Stroke as a disease is emerging as a leading killer in developing countries like India, with improvement in health care the longevity has increased and diseases caused by infection, malnutrition etc are beginning to take a back seat. For various reasons there is lack of data for stroke from countries like India.

Objective: This study attempts to find out the epidemiological features and common risk factors for stroke in India and to see if it follows the same pattern as in other parts of the world.

Patients and Methods / Material and Methods: We studied all cases (new and old) of stroke presenting to our clinic for management of stroke for the first time. We excluded cases with perinatal hypoxia, cranio-cerebral trauma and micro-cerebrovascular disease from the study.

Results: We studied 1039 cases of stroke in our clinic out of which 702 were males and 337 were females. Lacunar infarcts formed 12.03% of cases, 56.3% cases were due to infarcts. Intracerebral hemorrhage were seen in 28.68% cases, subarachnoid hemorrhage in 1.25% and venous stroke in 1.73%. Hypertension, diabetes mellitus, obesity and smoking were the commonest risk factors.

Conclusion: The epidemiological profile of stroke in India was different from stroke in other parts of the world in many respects and the management of stroke should be planned accordingly.

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1308

WFN15-0584

Stroke

Seizures in stroke: an Indian perspective

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Background: Seizures are one of the complications seen in few cases of stroke. It has been a common practice among physicians to treat all cases of stroke with antiepileptic drugs in order to prevent seizure.

Objective: In this study we tried to find out the incidence of seizure in cases of stroke and the rationality of giving antiepileptic drugs in these cases.

Patients and methods / Material and methods: We studied 1039 case of stroke in our clinic out of which 702 were males and 337 were females. We included both new and old cases presenting to our clinic for the first time. We enquired whether they had seizure after stroke and whether they received antiepileptics. Those who had seizure within 30 days of stroke were labelled as “early” cases and those who had seizure after 30 days were called as “late” cases. New cases of stroke (except sub-arachnoid hemorrhage) were not put on antiepileptics unless they had a seizure.

Results: The incidence of seizure in our cases of stroke was 13.5%. Recurrence in spite of antiepileptics was seen in 41.4% cases.

Conclusion: Seizure was not common in cases of stroke. Prophylactic antiepileptic drugs did not prevent seizure in cases of stroke. Therefore antiepileptic drugs should be used judiciously in cases of stroke and routine administration of these drugs to all cases of stroke should be discouraged.

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1309

WFN15-1526

Stroke

Bilateral motor and somatosensory symptoms as presentation of insular ischemic stroke

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Introduction: Insular cortex is a multimodal convergence region with a complex irrigation depending mainly of M2 segment of the middle cerebral artery. Insular ischemic stroke are rare and clinical presentation is heterogeneous. Vestibular-like syndromes, contralateral motor and somatosensory deficits, variety of aphasias, somatoparaphrenia and dysautonomic disorders among others have been described.

Objective: To describe a serie of patient with insular ischemic stroke evaluated in our centre in the last 3 years. We accepted minimal extention to an adjacent operculum or subinsular area.

Case 1: A 78-year-old woman presented an acute and transient paraplegia and confusional state that last 10 hours. Brain CT showed a right insular ischemic stroke.

Case 2: A 35-year-old woman complained of sudden and brief quadriplegia and speech disturbance followed by transient and bilateral somatosensory symptoms. Brain MRI showed a left insular ischemic stroke.

Case 3: A 54-year-old woman presented a distortion of body image, not recognizing her own right upper limb, weakness of the same limb and dysarthria along 30 minutes. Brain MRI reveal a left insular isquemic stroke.

Case 4: A 67-year-old woman presentes with non-fluent aphasia and right hemiparesis that lasted 2 days. Brain MRI reveal a left insular infarction with mínimum extention to temporal lobe.

Discussion: Our patients showed multimodal deficits that can mimic other vascular territories. Rapid and complete recovery in some cases is in agreement with current evidence. We highlight the presence of bilateral motor and somatosensory deficits as presentation symptoms of insular ischemic stroke that had not been reported previously.

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1312

WFN15-0875

Stroke

A case of bilateral internal carotid and left vertebral artery occlusion

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Background: Bilateral internal carotid artery (ICA) occlusion is very rare type of cerebrovascular disease. Patients with bilateral ICA occlusion are at high risk for recurrent transient ischemic attacks (TIA) or stroke, but sometimes they may survive without neurological deficit. We present a rare case of bilateral ICA occlusion with additional left vertebral artery occlusion.

Case: A 60-year-old man presented with a three-months history of dizziness. He had a history of hypertension, diabetes mellitus, heavy smoking, and several TIAs 9 years ago. He had stopped taking antiplatelet medications after 3 months of his TIA symptoms. Neurologic examination showed no deficits. Brain MRI showed multiple lacunar infarctions in the pons and bilateral corona radiata and multiple borderzone infarctions in the anterior cortical borderzone area. Cerebral angiography showed complete occlusion of the bilateral proximal ICAs and left vertebral artery with transdural collateral flow from the bilateral middle meningeal and internal maxillary arteries. Brain CT perfusion showed significant prolongation of mean transit time in the bilateral ICA and PCA territories. The patient was treated with aspirin and cilostazol. Six months after his admission, he has experienced dizziness several times. However, there was no further TIA symptoms.

Conclusion: We report a case of bilateral ICA and left vertebral artery occlusion associated with multiple atherosclerotic risk factors. His good clinical state suggest that bilateral occlusion of the ICA may be a relatively benign conditions, if cerebral perfusion is maintained by sufficient collateral circulation.

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1315

WFN15-0029

Stroke

Prevalence of vascular cognitive impairment in acute transient ischemic attack and minor stroke

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Vascular cognitive impairment (VCI) after acute stroke is common which may result in a quantifiable decrease in the quality of life and a financial burden for the patient's family and society. VCI is preventable and curable if diagnosed sufficiently early. The gold standard for assessment of cognitive impairment is still the formal neuropsychological assessment but are time consuming and are not routinely used by most clinicians. The Montreal Cognitive Assessment (MoCA) has been found more sensitive for recognition of mild cognitive impairment (MCI). This study aimed to determine the prevalence of VCI in TIA and minor stroke and to explore on the factors associated in the development of vascular VCI. A total of 50 consecutive patients (TIA with ABCD 2 score >3 and minor stroke NIHSS.

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1317

WFN15-0645

Stroke

Intracranial vasospasm associated with acute spontaneous spinal subdural hematoma

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Background: Acute spontaneous spinal subdural hematoma (SDH) is a very rare disease. However, it often results serious complications hence appropriate therapeutic approaches as well as fast diagnosis are warranted. Further, intracranial vasospasm (ICVS) associated with spontaneous spinal SDH has been reported very rarely as well.

Objective: To report an extremely rare case of the headache patient with ICVS who was presented with acute spontaneous SDH and to discuss pathogenesis and clinical features.

Patients and Methods: A 41-year-old woman is reported. Medline was used to search literatures. We obtained written informed consent from the patient for publication of this case report and any accompanying images.

Result: Our patient was admitted to the hospital with a complaint of headache. Before visiting our hospital, intracranial multiple vasospasm was noted in the brain CT angiogram of other hospital. After 1 day, she had a complaint of neck and back pain. Neurological examination showed marked neck stiffness. Brain CT showed marked brain swelling without hemorrhage (e.g. SAH). In conventional cerebral angiography, there was multiple vasospasm. At the admission day 3, she presented paraplegia and urinary incontinence. Also, she had anesthesia below the T6 level. The spine MRI showed C7-T6 spinal cord compression due to hyperacute stage subdural hematoma.

Conclusion: This report describes a rare case of a headache patient with intracranial vasospasm (ICVS) that was associated with acute spontaneous spinal SDH. Spinal cord evaluation should be considered in the patients with headache symptom who have ICVS although cerebral hemorrhage would be not visible in brain image.

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1318

WFN15-1212

Stroke

Unusual presentation of reversible cerebral vasoconstriction syndrome (rcvs) in a post-partum woman

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Objective: Emphasizing uncommon conditions leading to stroke in post-partum women and therapeutic considerations.

Background: Postpartum angiopathy is uncommon peripartum stroke etiology. Angiography shows vasoconstriction that usually resolves spontaneously.

Methods: case report: Results: 31 year old G4P2 who underwent C/S due to gestational hypertension at 27 weeks with severe pre-eclampsia. Blood pressures were uncontrollable but post-partum with magnesium infusion they were controlled well. She lost follow up appointment and 20 days post-partum presented with headache and vomiting and hypertension. Physical exam though had no neurological deficits and CT brain was normal. Next day became less arousable and CT brain showed posterior fossa hypodensities. With diagnosis of PRES, She was started on Magnesium (6 gr) and an MRI showed posterior circulation ischemic strokes. Intervention not feasible as was out of the window. Vasculitis was considered but given herniation risk, tap was deferred.

Angiography showed diseased vertebral arteries and was started on high dose intravenous Methylprednisolone, and Nimodipine 60 mg Q4H. Next day became more somnolent and exam was consistent with global aphasia and MRI showed left MCA and ACA multifocal ischemic infarcts. Magnesium sulfate 2 gr/h for 24 hours was started, and brain biopsy showed normal results. Hypercoagulable panel showed prothrombin gene mutation. Fibromuscular dysplasia was ruled out. Aphasia surprisingly improved and patient's deficits completely improved upon discharge.

Conclusions: Postpartum angiopathy including RCVS is still not a very well-known era as well as its management. In a postpartum woman with known severe pre-eclampsia presenting with severe headache it should be considered and ruled out by by a CT/MR angiography before leading to its consequences. Management is still controversial but aggressive blood pressure management, Magnesium sulfate and calcium channel blockers are beneficial.

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1319

WFN15-0648

Stroke

Alterations of tryptophan metabolites in cerebrospinal fluid and serum after stroke

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Background: Aim of the present study was to investigate changes of tryptophan metabolites in the cerebrospinal fluid (CSF) and serum of stroke patients.

Patients and Methods: Patients were recruited from the Neurological Department of the General Hospital Amstetten and Neuropsychiatric Hospital Mauer, Austria. Patients were divided in three groups: TIA/PRIND (n = 15); sub-acute stroke (SA-STR; n = 23); three to six months after stroke (OLD-STR) (n = 16). The amount of L-tryptophan, L-kynurenine, kynurenic acid and anthranilic acid in CSF and serum of patients (n = 54) and corresponding control subjects (CO; n = 26) were analysed by HPLC method. Correlations of changes were analysed. Student's t-Test and one-way-ANOVA were applied. The study was performed according to the ethical regulations of the government of Lower Austria.

Results: Tryptophan levels were significantly increased in the CSF (between 100–200% of CO; p < 0.05), but not in the serum, in all three groups, whereas L-kynurenine increased in serum of all groups, no changes were seen in the CSF. Notably, kynurenic acid increased significantly in CSF (between 200–500% of CO) and in serum (approx. 190% of CO) in all groups. Anthranilic acid increased significantly in serum in all groups (between 220–330% of CO), but not in CSF.

Conclusion: Stroke events are characterized by augmentation of tryptophan metabolism in CNS and periphery; neurochemical changes are persisting months after stroke. This might be one cause for post stroke depression and post-stroke dementia. A particular increase of kynurenic acid was revealed in the CSF and serum of TIA/PRIND patients. Study supported by NFB Austria, Project LS 10-32.

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1320 WFN15-0209

Stroke Relationship between Vitamin D deficiency and 3 month functional outcome in acute ischemic stroke patients

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Background: Vitamin deficiency increase the risk of cardiovascular disease.

Objective: We determined whether vitamin D deficiency is associated with 3 month functional outcome in acute ischemic stroke patients.

Material and Methods: We retrospectively analyzed 328 consecutive patients with first-ever transient ischemic attack and acute ischemic stroke using prospective stroke registry. Serum 25-hydroxyvitamin D [25(OH)D] was obtained within 24 hours of hospital admission. Vitamin D deficiency was defined as serum 25(OH)D level of less than 10 ng/ml. Poor 3 month functional outcome was defined as modified Rankin Scale (mRS) 3-6. Multivariable logistic regression analysis was used to test whether Vitamin D deficiency is an independent predictor of poor 3 month functional outcome.

Results: Mean age was 67.4 (±13.2) years, and 59.1% of patients were men. Mean level of 25(OH)D was 11.5 ± 6.1 ng/mL and 48.2% of patients were vitamin D-deficient. On bivariate analysis, vitamin D deficiency was associated with 4 seasonal variation (Pearson's χ^2 , $p = 0.008$) and severe NIH Stroke Scale (NIHSS) score (Mann-Whitney U, p

Conclusion: Vitamin D deficiency is highly prevalent in Korea, and associated with poor 3 month functional outcome in patients with acute ischemic stroke. Future trials should be designed to determine whether optimal vitamin D supplementation could improve functional outcomes of stroke patients.

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1322 WFN15-0211

Stroke Stent retriever-based endovascular thrombectomy in patients with acute ischemic stroke

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Background : Thrombectomy using stent retriever is recognized as effective treatment for acute stroke, and it can be applied alone or with other thrombolytic therapy. In the present study, we evaluate the efficacy and safety of stent retriever-based endovascular thrombectomy.

Methods: A total of 41 patients had been retrospectively analyzed who were treated with emergent Solitare^{FR} stent retriever during a 4-year period.

Results: Among 41 patients, 56.1% had MCA occlusion and 43.9% had ICA occlusion. IV-rtPA was administered in 53.7% before mechanical thrombectomy. Twelve patients were treated with additional thrombolytic therapies to stent retriever thrombectomy, including IA urokinase ($n = 2$), IA tirofiban ($n = 1$), balloon angioplasty (PTA, $n = 2$), stent insertion ($n = 5$), and PTA/stent plus tirofiban ($n = 2$). Complete and partial recanalization of occluded artery was achieved in 24 patients (58.5%) 14 patients (34.1%), respectively. Only 3 patients (7.3%) failed to recanalize occluded arteries (ICA occlusion, $n = 2$, MCA occlusion, $n = 1$). Overall hemorrhage was found in 9 patients (22.0%). Among them, four

patients (parenchymal hematoma, $n = 3$, SAH, $n = 1$) had symptomatic hemorrhage. In comparison of treatment effect between patients treated with only mechanical endovascular therapy and those treated with combined mechanical endovascular therapy and IV rtPA, there was no differences in the recanalization rate ($p = 0.87$), stroke volume ($p = 0.74$), and symptomatic hemorrhage ($p = 0.48$) between two groups.

Conclusions: The overall recanalization of stent retriever-based endovascular thrombectomy is favorable, and the rate of symptomatic hemorrhage was relatively low. In addition, stent-retriever-based endovascular thrombectomy may be useful in cases with thrombolysis failure with IV rtPA.

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1323 WFN15-0580

Stroke Right-side propensity of cardiogenic emboli in acute ischemic stroke with atrial fibrillation

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Background: A recent study demonstrated that cardiogenic ischemic stroke tends to consist of a large corticosubcortical infarct and to have a right-side propensity relative to aortogenic ischemic stroke.

Objective: We attempted to determine the propensity for sidedness of cardiogenic emboli associated with atrial fibrillation (AF) by comparing the sides on which microembolic signals (MES) were detected via transcranial Doppler (TCD) monitoring and the location of infarcts on magnetic resonance imaging.

Materials and methods. Patients with AF on Holter monitoring and MES on TCD monitoring were selected from an ischemic stroke registry. Patients with prosthetic valves or cerebral/carotid artery stenosis were excluded.

Results: By TCD monitoring of 30 patients, 78 MES were detected: 47 on the right and 31 on the left side (60.3% vs. 39.7%, $p < 0.01$, chi-square test). Among 21 patients who had middle or anterior cerebral artery (MCA/ACA) territory infarcts, 16 had right-side-dominant infarcts and 5 patients had left side dominant infarcts (76.2% vs. 23.8%, $p \leq 0.01$, chi-square test). The median infarct volume on the right side was 16.2 (3.18 - 75.4) ml, while that of left side was 1.2 (0.25 - 5.05) ml ($p \leq 0.01$, Mann - Whitney U test).

Conclusions: This study demonstrated the existence of a right-side propensity of cardiogenic emboli and the larger infarct volume of right-side MCA/ACA stroke in patients with AF. These results can be attributed to anatomical differences between the innominate and the left common carotid artery.

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1324 WFN15-0999

Stroke The nature of processing semisyllabic orthography in brain - novel insights from persons with stroke

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Background: Existence of dual routes in brain is an undisputed phenomenon in processing alphabetic scripts (English, German etc.). However considering the orthographic nature of non-alphabetic scripts such as Korean Hangul, Kannada (Indian semi-syllabic script) etc., the functional presence of dual routes is debatable. Analysis of reading-writing performances of persons with acquired central alexias-agraphias subsequent to stroke offers insights on the nature of processing semi-syllabic orthography.

Objective: We aimed at deciphering the way semi-syllabic orthography is processed in our brain by testing the: existence of dual routes in reading-writing semi-syllabic orthography and applicability of popular dual route cascaded (DRC) model (Coltheart, Rastle, Perry, Ziegler, & Langdon, 2001) to semi-syllabic scripts.

Patients and Methods: Patient and institutional review board approval were obtained. Persons with acquired lesions to core perisylvian brain areas following cerebro-vascular accidents performed reading-writing tasks involving words and non-words in Kannada. Error analysis of their responses was carried-out.

Results: Two patients demonstrated 'surface agraphia' and are evocative of the brain's over-reliance on sub-lexical strategy. Such rare cases constitute a strong evidence for dual routes in semi-syllabic orthography (Krishnan, Tiwari & Kiran, 2013). Three patients manifested phonological alexia. This substantiates the functional lexical route owing to the impaired sub-lexical route.

Conclusion: Our findings validate the neuro-anatomical representations for language to be universal despite the diverse nature of individual orthographies. Cases are supportive of dual-routes even in semi-syllabic orthography. Study in-turn respects the idea that dual route models developed principally on grounds of alphabetic orthographies are applicable even for the non-alphabetic scripts.

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1325

WFN15-1071

Stroke

The relationship between prognosis and serum chemerin levels in acute ischemic stroke patients

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Background: Chemerin plays a role in angiogenesis, osteoblastogenesis, myogenesis and glucose regulation. In the literature, there are limited number of studies that examined the relationship between serum chemerin levels and atherosclerosis. The present study investigated the relationship between prognosis and serum chemerin levels of acute ischemic stroke patients.

Material and Methods: To evaluate the serum chemerin levels, blood samples were taken within 1st and 7th days, and after 3rd months in the patient group. The people without any stroke were selected as controls. Prognosis was evaluated with National Institutes of Health Stroke Scale (NIHSS) and modified Rankin Scale (mRS) scores.

Results: The chemerin level of the patients was higher than the control group and p values were 0,025, 0,001, 0,0001 respectively. The first average of serum chemerin levels was statistically significantly lower than in the 3rd month levels ($p = 0,034$). Statistically significant positive correlation was observed between the initial values of chemerin and insulin levels ($r = 0,322$ $p = 0,023$). When ROC analysis was done for the levels of chemerin, the increase were shown not to be sufficient for diagnosis. No statistically significant correlation was observed between serum chemerin levels and NIHSS or mRS scores.

Discussion: Previous experimental and clinical studies showed a relationship between the atherosclerosis and serum chemerin levels. Similarly, our findings suggested that the serum levels of chemerin might be related with atherosclerotic process and/or oxidative stress associated with brain damage occurring after stroke.

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1326

WFN15-0548

Stroke

Endovascular treatment of ischemic stroke patients with symptomatic occlusion of basilar artery

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Objective: The aim of our retrospective study was to assess the safety and efficacy of combined revascularization therapy including initial intravenous thrombolysis (IVT) followed directly by a mechanical thrombectomy and compare the results with IVT alone and with combined thrombolysis (IVT + intra-arterial thrombolysis, IAT) in acute ischemic stroke (AIS) patients with basilar artery occlusion (BAO).

Methods: Study set consisted of consecutive AIS patients with BAO, who were treated with standard IVT and mechanical thrombectomy using a stent retriever without waiting for any clinical or radiological improving during IVT. The results were compared with historical controls treated with IVT alone or with combined IVT + IAT. Stroke severity was assessed by NIHSS. Recanalization was scored using TICI scale and clinical outcome using mRS scale; good outcome was scored as 0-3.

Results: Seventeen patients of median age 64 years were treated with combination of IVT and mechanical thrombectomy. A baseline median NIHSS score of patients was 14. The median time from stroke onset to intervention was 180 minutes. Recanalization was achieved in 15 (88 %) patients and good 3-month clinical outcome was in 11 (65 %) patients. No intracerebral hemorrhage occurred. These patients had significantly higher recanalization rate and better outcome than patients treated with IVT alone or with IVT + IAT ($p=0.024$, $p=0.006$).

Conclusion: Combined revascularization using IVT and stent retriever is safe and effective in AIS patients with BAO. Patients treated with this approach had significantly higher recanalization and better outcome than patients treated with IVT or IVT + IAT.

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1327

WFN15-1315

Stroke

Case report: caudate stroke simulating transient global amnesia

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A 50-year-old white male with a prior history of hypertension arrived at the emergency room, accompanied by his wife, who claimed he had presented an acute onset of disorientation to place and time, but not to person. He also showed anterograde memory loss, asking the same questions several times. Recently, he had been stressed by some family issues. There were no abnormal findings during neurological examination and laboratory and CT scan studies were normal. On his third day of

hospital stay, he underwent a cranial magnetic resonance image study that showed a hypersignal lesion on T2 and on diffusion-weighted image suggesting an acute ischemic lacunar infarction on the head of caudate nucleus (Fig. 1). The subsequent electrocardiography, echocardiogram and intracranial MR angiography were all normal.

Transient global amnesia (TGA) is a condition that presents with a reversible amnesia and repetitive questioning, being common in middle-aged and elderly individuals. Our patient had a prominent anterograde amnesia, and an inability to form new memories for a period of 240 minutes.

There are case reports that associate TGA with ischemic attacks of cingulate gyrus and corpus callosum. Ravindran et al wrote a case report of TGA in a patient with acute ischemia in the body of right caudate nucleus, Saito et al reported a patient with TGA who had had an infarction of the left retrosplenial cortex, while Moussouttas et al reported an amnesic syndrome of the subcallosal artery.

We have obtained patient approval.

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1328

WFN15-1320

Stroke

Case report: Sneddon's syndrome in a 24-year-old Brazilian female

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A 24 years-old white female, with a prior history of hypertension, migraine and previous miscarriage, presented to the ER with left hemiparesis, dysarthria, dysmetria and headache. During physical examination, the only abnormal finding was *livedo reticularis* in abdomen and legs. CT scan showed a left cerebellar and vermis hematoma and right white matter frontal hypodensity. Laboratory studies and CSF analysis were normal.

She was admitted for further investigation and underwent a cerebral angiographic evaluation that demonstrated an aneurysmal dissection of the left vertebral artery, an anterior cerebral artery occlusion and small vessel findings suggestive of telangiectasias.

Sneddon's syndrome is an arterial vasculopathy of small and medium vessels characterized by recurrent strokes and *livedo reticularis*. In about half of the cases, there is an association with antiphospholipid antibody, strokes, transient ischemic attacks, cognitive impairment, epilepsy, headache, vertigo, and other neurological findings. Hypertension, venous thrombosis, renal injury and miscarriage can also be present.

Its pathophysiology is not yet well understood, but it could be associated with abnormal platelet activation due to increased levels of von Willebrand factor and factor VII, decreased levels of S protein and also with activated protein C resistance. This would lead to arterial stenosis and occlusion, consequently leading to chronic hypoxia and angiogenesis, with vessels being more likely to rupture and to form aneurysms. Peripherally, these stenosis and occlusions lead to hypoxia and reticular cyanosis. The best treatment for this condition is not yet defined, being restricted to anticoagulant or antiplatelet therapy.

We have obtained patient approval.

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1329

WFN15-0435

Stroke

Factors associated with safety and efficacy of intravenous thrombolysis with alteplase. a ten-year single-center experience in Greece

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Background: Intravenous (i.v.) thrombolysis with alteplase is a well established treatment of choice for patients with acute ischemic stroke. Our ICU has a 10 year experience in i.v. thrombolysis, with participation at international studies (SITS-MOST, ECASS-II).

Objective: To decide which factors affect the safety and efficacy of i.v. thrombolysis, a ten-year evaluation of our thrombolysis database (2004 - 2014) was performed.

Patients and methods: Retrospective study including 111 patients with acute ischemic stroke who received i.v. thrombolysis with alteplase. Demographic data, scales of functional outcome [modified Rankin Scale (mRS)] and severity scores [Simplified Acute Physiology Score (SAPS) II and National Institutes of Health Stroke Scale (NIHSS)] were recorded.

Results: Table 1.

Conclusions: Higher severity scores (SAPSII, NIHSS) can predict both possible major complication and worse functional outcome regardless major complication. Patients with major complications exhibit longer duration of hospitalization and worse neurologic outcome.

Table 1. Factors correlating with manifestation of complications Factors correlating with worse outcome.

	No major complication (n = 100)	ICH or Death (n = 11)	p Value	Patients with favorable outcome (mRS after three months ≤ 1) (n = 62)
SEX:				
FEMALE	33	3	N.S	17
MALE	67	8		45
AGE	65 ± 1.3	65 ± 3	N.S	64 ± 2
Days of hospitalization	4 ± 0.8	16 ± 5	<0.001*	2 ± 0.2
SAPSII	24.4 ± 1	33 ± 4	0.017*	22 ± 1
NIHSS (admission)	11	14	N.S	9
NIHSS(24 hours)	6	14	0.002*	2
NIHSS(7 days)	4	15	<0.001*	1
				Patients with unfavorable outcome (mRS after three months > 1) (n = 49)
SEX:				
FEMALE	19			N.S
MALE	30			
AGE	66 ± 2			N.S
Days of hospitalization	9 ± 2			0.005*
SAPSII	30 ± 1.6			<0.001*
NIHSS (admission)	14			<0.001*
NIHSS(24 hours)	11			<0.001*
NIHSS(7 days)	11			<0.001*

Mean ± SE (Standard Error). *Statistically significant. (N.S) Not statistically significant.

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1330

WFN15-1478

Stroke

Factors involved in delayed diagnosis of dural arteriovenous fistulas

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Objectives: To know and identify factors involved in delaying making definite dural arteriovenous fistulas diagnosis.

Method: Retrospective analysis of 25 consecutive patients with dural arteriovenous fistulas referred to Prasat neurological institute, Bangkok, Thailand.

Results: Dural Arteriovenous fistulas were found in patients at age ranging from 32-74 years old. They are mostly found at cavernous sinus (40%), transverse-sigmoid sinus (35%) respectively. At these locations patients usually present with headache, exophthalmos and ophthalmoparesis (70%, 65%, and 38% respectively) which are resemble with other common neurological diseases. CT brain, MRI or MRA brain were selected to examine in every patients. Average delayed time before definite diagnosis is 1.5 months. Factors involved in delayed diagnosis are unrecognizing symptoms mimicking common neurological diseases (60%), choosing improper neuroimaging (60%) and overlooking subtle abnormalities in those neuroimaging (45%).

Conclusions: Keeping in mind that headache, exophthalmos and ophthalmoparesis can be presentation of dural arteriovenous fistulas particularly in middle-age to elderly patients and selecting proper initial neuroimaging as well as meticulous interpreting would help to achieve correct diagnosis and be able to start treatment in timely fashion.

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1334

WFN15-0076

Stroke

Prevalence and risk factors of high on-treatment platelet reactivity to acetylsalicylic acid used in the secondary prevention of stroke

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Introduction: The aim of the study was to evaluate the prevalence of high on-treatment platelet reactivity (HOPR) to acetylsalicylic acid (ASA), used for secondary prevention of stroke, and the assessment of risk factors associated with HOPR.

Material and methods: 215 patients after ischaemic stroke taking ASA at the dose of 75-150 mg and 46 healthy volunteers were enrolled in the study. Platelet function was assessed by impedance aggregometry method in the whole blood using a multi-channel platelet function analyzer (Multiplate®, Dynabyte). Patient and Institutional Review Board (IRB) approval was obtained, as necessary.

Results: HOPR (AUC >= 300) was present in 85 (39.5%) of examined patients. The following risk factors for HOPR were determined: ASA dose ≤ 100 mg/daily, heart rate > 70 beats/min, taking nitrates, haematocrit > 40%, platelet count > 300×10³, duration of diabetes mellitus (DM) > 5 years. The degree of diabetes control did not significantly influence platelet function. Function of platelets *in vitro* was different in women and men after using other agonists than arachidonic acid. The probability of the critical event was higher but insignificantly for patients with HOPR.

Conclusions: The study confirmed the occurrence of HOPR in many patients taking ASA for secondary stroke prevention. Risk factors for HOPR in the examined group were as follows: low ASA dose, higher heart rate, usage of some drugs, higher haematocrit and platelet count, long DM duration. Sympathetic activity could influence reactivity of platelets in patients taking ASA. The laboratory HOPR established by impedance aggregometry increases the risk for clinical aspirin resistance.

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1335

WFN15-1250

Stroke

Reversible cerebral vasoconstriction syndrome as a cause of simultaneously ischemic and hemorrhagic stroke

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Introduction: Reversible cerebral vasoconstriction syndrome(RCVS) is characterized by multifocal segmental vasoconstriction of cerebral arteries, which resolve spontaneously within 3 months, typically heralded by a sudden, severe headache with or without neurologic deficit. The main complications are intracranial hemorrhage, ischemic disturbance of the cerebral circulation, hypertensive encephalopathy (PRES) or epileptic seizures.

Case: Female, 47 years old, hypertensive and no history of previous migraine, suddenly developed headache associated with paresis of the right upper limb. After a few hours of the onset of symptoms, a CT scan was performed and showed intraparenchymal hemorrhage in left temporal and parietal lobes. The patient evolved with partial and progressive improvement of the symptoms. A week later, a CT scan revealed ischemic area at the right parietal lobe. Magnetic Resonance Angiography was performed, which found narrowing of the right posterior and middle cerebral artery. The patient was treated with prednisone and nimodipine for 3 months. A 90 days later MRA revealed no vascular irregularity anymore.

Discussion: Stroke, either hemorrhagic or ischemic is a relatively frequent presentation in RCVS, but simultaneously manifestations of intracerebral hemorrhage, and cerebral infarction was not described. More than half the cases (60%) are secondary to exposure to vasoactive substances or occur in the postpartum period. Cortical subarachnoid hemorrhage (22%), intracerebral hemorrhage (6%), seizures (3%), and reversible posterior leukoencephalopathy (9%) are early complication. Ischemic events, including TIAs (16%) and cerebral infarction (4%), occur later than hemorrhagic strokes. Several case series have reported success with calcium channel blockers or short term glucocorticoids medications.

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1336

WFN15-0370

Stroke

Ñandu proyect: Ñuble, Biobío cerebrovascular attack incidence and death community surveillance and intervention study

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Background: Stroke is the first cause of death in Chile, accounting for 10% of all deaths and with a population-estimated incidence of 140 per 100,000/year. National statistics show a significant regional variability in mortality and case fatality rates, being particularly high in the province of Ñuble, Biobío region. This variability is explained by differences in the prevalence of poverty, sedentary life-style, obesity and diabetes. In addition, there is significant variability in hospital care. These data are the result of retrospective and ecological studies that have significant biases.

Objective: The present study aims to determine the incidence, prognosis, and improve quality of stroke care at a population level in the province of Ñuble.

Patients and Methods: This prospective community study is organized according to the STEPS/STROKE methodology. Multiple overlapping sources of hospitalized, ambulatory and deceased cases, using standardized diagnostic criteria are being used to identify and follow-up all cases occurring in the resident population of Ñuble during one year. A program of community information and training of health teams using simple evidence-based protocols is being implemented simultaneously. Approval for this study was obtained from the appropriate ethics committees.

Results: Case ascertainment began on March and as of April 30, 122 cases have been ascertained. Interventions have included NIHSS workshops, stroke identification and classification seminars and the institution of a Stroke Code for the province.

Conclusion: Population based stroke surveillance in areas of particular high disease burden and measure the impact of health interventions is needed. This ongoing project fulfills both needs.

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1337
WFN15-0389
Stroke

A case of peri-operative paradoxical cerebral embolism with cervical ica and tandem occlusion who achieved timely endovascular reperfusion

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Endovascular therapy following intravenous thrombolysis has demonstrated benefit in a select cohort of patients with acute ischemic stroke and large vessel occlusion.

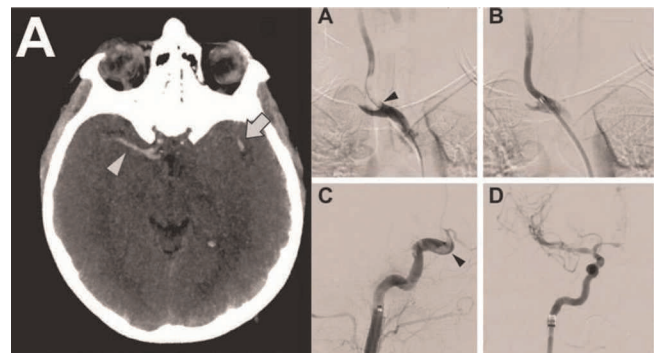
To describe an unusual case of peri-operative stroke to highlight elements of evolving stroke care.

After orthopedic surgery, a 34 year old woman developed slurred speech, left hemiplegia and neglect (NIHSS 15). Bilateral hyperdense MCA was seen (Left panel; ASPECTS 10). Catheter angiography (Right panel) revealed a saddle embolus at the right brachiocephalic trunk and distal ICA and MCA tandem occlusion. Thrombectomy was performed bilaterally using a Solitaire stentriever. Reperfusion was achieved at 3:15 h. Trans-esophageal echocardiogram demonstrated a reversed shunting PFO and an IVC filter placed. Refractory hypotension occurred as a result of retroperitoneal hemorrhage from inguinal vessels being sheared by

a misplaced closure device. Extensive infarction was seen on repeat CT and the patient brain dead 5 days after symptom onset without hemispherectomy.

Peri-operative patients would seem ideal for endovascular therapy. ESCAPE and REVASCAT were trials with a small number of endovascular therapy-only and separately cervical ICA occlusion cases which trended towards benefit. The rapidly shifting paradigm focusing on time to reperfusion will need to be balanced with a systems approach that is patient-focused, safe and involves family in the even faster 'stroke call'.

I have obtained patient and/or Institutional Review Board (IRB) approval, as necessary.



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1338
WFN15-0407
Stroke
Pontine infarction presenting with isolated trigeminal motor neuropathy

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Background and Significance: A small number of cases on pure trigeminal neuropathy due to ischemic lesion of the pons have been reported. Isolated trigeminal motor neuropathy without trigeminal sensory disturbances is very rare. We report a patient with ipsilateral isolated trigeminal motor paralysis without any sensory disturbances or other cranial neuropathies.

Case: A 77-year-old woman complained sudden onset of numbness on the left cheek. A day ago, she experienced uncomfortable sensation on the left cheek and sustained the following morning. She had past medical history of hypertension. Neurological examination revealed reduced power of the left masseter muscle. All the facial senses, including light touch, pain, temperature and vibration were normal. No other neurological focal deficits were found. Electrocardiography and echocardiogram were normal. Diffusion-weighted MRI revealed high signal intensity lesions in the left pontine tegmentum. Brain CT angiography showed no vascular abnormality. The patient was diagnosed with left pontine tegmental infarction. She was treated with clopidogrel.

Conclusion: Trigeminal motor nucleus lies immediately medial to the main sensory nucleus in the pontine tegmentum. Isolated trigeminal motor weakness can be caused by small pontine tegmental lesion.

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1339

WFN15-0516

Stroke**The changes of the size of carotid arterial plaque during 10 years in acute stroke patients**

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Background: Carotid arterial stenosis becomes more common and important risk factor for stroke patients in Asian area. We reviewed stroke database to investigate the changes of carotid arterial stenosis during approximately 10 years.

Methods: Acute stroke patients at the NHIS Ilsan Hospital at 2005–2006 and 2014 year with available carotid ultrasound, transcranial Doppler (TCD) examination and ankle-brachial indexes (ABI) formed the analysis cohorts. Retrospective review was performed.

Results: During 2005–2006 year, total of 304 patients were included and during 2014 year, 192 patients were included. By duplex ultrasound, common, internal carotid arteries are examined and the biggest diameters of plaques are recorded and 3 groups are defined: less than 2 mm, 2–4 mm and greater than 4 mm. During 2005–2006 year, the prevalence of less than 2 mm is 37% (112 patients), 2–4 mm is 57% (174 patients) and greater than 4 mm is 6% (18 patients). During 2014 year, less than 2 mm is 31.7% (61 patients), 2–4 mm 57.3% (110 patients) and greater than 4 mm 11% (21 patients). As the size of carotid arterial plaques increased, ABI is decreased: the mean ABI of less than 2 mm group is 1.09, mean ABI of 2–4 mm group is 1.01 and mean ABI of greater than 4 mm group is 0.95.

Conclusions: Among the acute stroke patients, the prevalence of carotid arterial stenosis tend to be increased during 10 years and more than a half of them have carotid arterial stenosis above moderate degree, and these patients tend to have higher burden of advanced atherosclerosis as evidenced by a higher prevalence of peripheral arterial occlusive disease.

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1340

WFN15-1001

Stroke**Delayed appearance of diffusion high signal after recanalization**

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In thrombolytic therapy of acute stroke with major large artery occlusion, recanalization is an important prognostic factor for successful recovery. We report a patient who did not show neurological recovery with delayed appearance of high signal intensity in diffusion weighted image (DWI) despite of complete recanalization of middle cerebral artery (MCA) after intravenous thrombolysis. A 79 year-old man presented right side weakness and decreased consciousness which developed 1 hour ago. Neurological examination revealed global aphasia, right hemianopsia with left gaze preponderance and right hemiparesis. Initial CT angiography showed occlusion on left anterior cerebral artery (ACA) and MCA. Electrocardiogram revealed atrial fibrillation. Intravenous recombinant tissue type plasminogen activator (rt-PA) was given at 180 minutes from symptom onset. As neurological symptoms did not improved, catheter angiography was done to perform intra-arterial thrombolysis. Complete recanalization of left MCA with rapid visualization of distal branches was obtained. DWI taken at 24 hours

after rt-PA thrombolysis showed small multiple infarction at both ACA territories. Because of the neurological deterioration, DWI was taken again on the next day and showed newly developed diffuse high signal intensities in MCA territory with corresponding low signals at apparent diffusion coefficient image. On the following day, the patient still had right hemiplegia and global aphasia and magnetic resonance (MR) angiography taken at 72 hours after thrombolysis showed persistent complete visualization of left MCA including distal branches. We report a patient who had persistent neurologic deficit despite of early and complete recanalization by intravenous rt-PA thrombolysis. The reason for delayed appearance of DWI high signals despite of early complete recanalization is obscure. We suggest reperfusion injury or delayed ischemia as a possible explanation.

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1341

WFN15-0228

Stroke**The history of hypertension among the cha2ds2-vasc risk factors is associated with worse stroke severity in non-valvular atrial fibrillation-related stroke**

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Introduction: In patients with non-valvular atrial fibrillation (NVAf), the CHA2DS2-VASc risk factors are known to be associated with developing ischemic stroke. However, correlations between CHA2DS2-VASc risk factors and stroke severity have not been previously studied. The aim of this study was to evaluate which factors in CHA2DS2-VASc risk factors are related to and most contributable to stroke severity.

Method

Patients: Using the Seoul St. Mary's Hospital Stroke database, consecutive patients who were admitted to the Department of Neurology at Seoul St. Mary's Hospital with acute ischemic stroke due to NVAf from 2010 to 2013 who had been anticoagulation-naïve were studied.

Assessment of stroke severity: Severities of stroke were assessed at the time of admission using the National Institutes of Health Stroke Scale (NIHSS; scores range from 0 to 42, with higher scores indicating greater deficits).

Statistical analyses: The linear regression analysis was performed to determine independent association between each of the CHA2DS2-VASc risk factors and NIHSS scores. Values of $p < 0.05$ were considered statistically significant.

Results: A total of 98 anticoagulation-naïve patients who presented with acute ischemic stroke due to NVAf were enrolled. The linear regression analysis showed that only the hypertension among the CHA2DS2-VASc risk factors was associated with the worse stroke severity ($\beta = 3.753 \pm 1.710$, $p = 0.031$). The other risk factors of CHA2DS2-VASc were not associated with stroke severity.

Conclusion: The prior history of hypertension among the CHA2DS2-VASc was associated with worse initial neurologic deficits in anticoagulation-naïve patients with acute ischemic stroke due to NVAf.

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1342

WFN15-0410

Stroke

Differential expression of the calcium-sensing receptor in the ischemic core and penumbra after transient focal cerebral ischemia in ratsM.Y. Lee^a, J.S. Noh^a, J. Kim^a, I.B. Kim^a, W.S. Kang^b, Y.W. Moon^b.^aDepartment of Anatomy, College of Medicine The Catholic University of Korea, Seoul, Korea; ^bDepartment of Natural Sciences, College of Medicine The Catholic University of Korea, Seoul, Korea

G-protein-coupled calcium-sensing receptor (CaSR) has been recently recognized as an important modulator of diverse cellular functions, beyond the regulation of systemic calcium homeostasis. To identify whether CaSR is involved in the pathophysiology of stroke, we studied the spatiotemporal regulation of CaSR protein expression in rats undergoing transient focal cerebral ischemia, which was induced by middle cerebral artery occlusion. We observed very weak or negligible immunoreactivity for CaSR in the striatum of sham-operated rats, as well as in the contralateral striatum of ischemic rats. However, CaSR expression was induced in the lesion in ischemic rats. Six hours post-reperfusion there was an upregulation of CaSR in the ischemic zone, which seemed to decrease after seven days. This upregulation preferentially affected some neurons and cells associated with blood vessels, particularly endothelial cells and pericytes. In contrast, CaSR expression in the peri-infarct region was prominent three days after reperfusion, and with the exception of some neurons, it was mostly located in reactive astrocytes, up to day 14 after ischemia. On the other hand, activated microglia/macrophages in both the ischemic and border zones were devoid of specific labeling for CaSR at any time point after reperfusion, despite their massive infiltration. Our results show heterogeneity in CaSR-positive cells within the ischemic and border zones, suggesting that CaSR expression is regulated in response to the altered extracellular ionic environment caused by ischemic injury. Thus, CaSR may have a multifunctional role in the pathophysiology of ischemic stroke, possibly in vascular remodeling and astrogliosis. Grant Number: NRF-2014R1A2A1A11050246.

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1345

WFN15-0544

Stroke

Doppler sonographic findings of the vertebrobasilar insufficiency

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Background: Vertebrobasilar insufficiency (VBI) is a common cerebrovascular problem caused by reduction of vertebral artery flow, from atherosclerotic and degenerative changes of vertebral spinal structures. Color doppler flow imaging has improved investigations of the vertebral arteries (VA). The aim of this study was to evaluate the blood flow characteristics of extra cranial segments of vertebral artery in patients with vertebrobasilar insufficiency.

Methods: Bilateral VA were examined sonographically in the prevertebral (V1 segment), intertransverse (V2 segment), sub occipital (V3 segment) and terminal (V4 segment) in 80 patients with VBI. Angle-corrected peak systolic (Vps), end-diastolic (Ved), and time-averaged mean blood flow velocity (MV) were measured in pulsed Doppler mode, and the resistance index (RI) were calculated. The cross-sectional area (A) was measured on gray-scale images and flow volume was calculated.

Results: Left VA was dominant in 65% of patients. RI values increased and flow decreased with age. Blood flow velocity and volume were higher, and RI was lower in the left than in the right VA. In VBI patients

peak systolic velocity and RI were significant higher in V1 segment, and lower in the V3 and V4 segment: VpsV1 = 62,7 ± 16,4 cm/s; VpsV2 = 46,5 ± 15,1 cm/s; VpsV3 = 45,6 ± 17,7 cm/s; VpsV4 = 42,4 ± 14,7 cm/s. RIV1 = 72,2 ± 10,1; RIV2 = 68,7 ± 12,9; RIV3 = 64,6 ± 14,4; RIV4 = 61,9 ± 11,5.

Conclusion: The doppler sonographic assessment of different VA segments may be useful for the study of hemodynamic changes in patients with vertebrobasilar insufficiency.

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1346

WFN15-0842

Stroke

Interplay of depression and fatigue on quality of life after stroke

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Background: Little is known about the relationship of fatigue, depression, and quality of life (QOL) in urban minorities.

Objectives: In a minority urban population of stroke survivors, to (1) assess frequency of fatigue and (2) explore the relationship between fatigue and depression and their effect on QOL.

Patients and Methods: Prospective, pilot, cross-sectional observational study approved by the IRB. Patients with ischemic stroke within the past 3 years and without depression history were included. Standardized instruments were administered to assess fatigue [Fatigue Assessment Scale (FAS)], depression [Beck Depression Inventory (BDI)], QOL [Short-Form General (36) Health Survey (SF-36)] and stroke-related disability [modified Rankin Scale (mRS)]. A multiple linear regression model was constructed for the SF-36 score. FAS, BDI, and mRS scores were dichotomized, adjusted for age, gender, and diabetes.

Results: 32 patients enrolled (56% female), mean age 69.9 yrs ± 13.7; median 13 days (range 3-960) post-stroke; 50% with mRS ≥ 2; 44% with FAS ≥ 22, 28% with BD ≥ 11; 22% with both FAS ≥ 22 and BDI ≥ 11. Cohort's mean SF-36 score = 44.4 ± 8.3. BDI < 11 was associated with a score 8.3 units higher on the SF-36 (95%CI:3.0-13.5, p = 0.003) than BDI < 11; mRS < 2 was associated with 6.1 units higher score on the SF-36 (95%CI:2.3-9.9, p = 0.003) than mRS ≥ 2. FAS score < 22 was not associated with QOL (p = 0.35). In the final model, only depression, higher stroke severity, and diabetes predicted lower QOL.

Conclusion: Depression may better predict QOL in stroke than fatigue. Understanding the roles of fatigue and depression on QOL after stroke could facilitate tailored interventions to improve stroke outcomes.

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1347

WFN15-1106

Stroke

Women's perceptions of stroke prevention care differ based on their primary care physician's specialty

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Background: Many American women rely solely on their Ob/Gyn as their primary care physician (PCP).

Objectives: To explore (1) women's perceptions of stroke prevention (SP) based on their PCP's specialty; (2) if age influenced women's selection of PCP specialty; and (3) women's awareness of stroke prevalence and preferences for SP.

Subjects/methods: After IRB approval, 245 women surveyed at Ob/Gyn (n = 143) and PCP (n = 102) clinics. Surveys had 16 questions on demographics, awareness of stroke prevalence, stroke risk factors (SRF), physicians regularly visited, preferences for SP, and SP care received. Kruskal-Wallis & Mann-Whitney tests compared distribution of ordinal variables and age, Fisher's exact test for an association between categorical variables, and Cochran-Mantel-Haenszel to determine associations, adjusting for age.

Results: We found a difference ($p < 0.0001$) in mean age for only visiting Ob/Gyn ($31.2 \text{ yrs} \pm 7.3$) vs. Ob/Gyn + PCP (44.0 ± 16.3) vs. PCP only (55.7 ± 17.7). Women visiting only Ob/Gyns were less aware of stroke prevalence vs. others ($p = 0.01$). Fewer SRF were reportedly discussed by Ob/Gyns vs. PCPs ($p = 0.02$). Women reported receiving fewer tests for BP (RR 0.75, 95%CI 0.63–0.89, $p < 0.001$), cholesterol (RR 0.54, 95%CI 0.36–0.81, $p = 0.003$) and diabetes (RR 0.69, 95%CI 0.48–0.98, $p = 0.04$) from Ob/Gyns vs. PCPs. Women preferred addressing SP with their non-Ob/Gyn PCP (69%) vs. their Ob/Gyn (2%) vs. no preference (29%).

Conclusions: Ob/Gyns are perceived to provide less SP care than PCPs. However, most women prefer addressing SP with non-Ob/Gyn PCP. Women visiting only Ob/Gyn were younger and less aware of stroke prevalence than women visiting other PCPs. This surrogate approach to actual SP care suggests assessing Ob/Gyn practices in SP.

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1348

WFN15-0121

Stroke

Assessment of risk factors for haemorrhagic transformation in ischemic stroke patients

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Background: The haemorrhagic transformation (HT) is one of the most feared complications in ischemic stroke (IS) patients, especially in those submitted to thrombolysis treatment. Older age, male gender, high blood pressure (HBP), admission hyperglycaemia, low platelet count (LPC) and low serum lipids (LSL) are considered independent risk factors for hemorrhagic transformation in IS, with or without thrombolytic therapy.

Objective: To evaluate clinical and laboratory data of IS patients to verify their predictive importance for HT.

Patients and Methods: We retrospectively analyzed data of 415 consecutive patients with IS. We identified the patients with HT (group A) and without this complication (group B). We selected information on age, gender, thrombolytic treatment, mortality rate, HBP, atrial fibrillation, diabetes mellitus, smoking, obesity, laboratory findings. We have obtained Institutional Review Board approval, as necessary.

Results: The HT incidence was 4.1%. None of the patients with HT receive thrombolytic therapy. The main age of A group patients was 64.94 ± 3.12 versus 67.58 ± 0.7 in B group patients. The mortality rate in HT patients was 35.29% versus 15.07% in non-HT patients. The A group patients presented higher incidence of HBP, obesity, smoking, admission hyperglycaemia and higher platelet count rate in comparison with B group patients. All patients from A group had normal total serum cholesterol levels.

Conclusion: The obtained results confirm that the male gender, HBP, obesity, and admission hyperglycaemia correlate with HT, and may act like predictive factors for this complication. We couldn't validate that LSL and LPC can predict HT in ischemic stroke.

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1350

WFN15-1370

Stroke

Using a simplified 4-item NIHSS to predict stroke outcomes

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Objective: This study aimed to develop a simple version of the National Institutes of Health Stroke Scale (NIHSS) which is as capable of predicting mortality and functional outcomes as the full scores.

Study Design and Setting: Patients with ischemic stroke were prospectively identified from the Taiwan Stroke Registry (n = 23,702) and randomly divided into derivation (n = 17,420) and validation (n = 6,282) cohorts. Hazard ratios (HRs) of death and poor functional outcome (with a modified Rankin Scale >3) within 6 months after the stroke associated with NIHSS items were identified by 5 stepwise models.

Results: Areas under the receiver operating curves (AUCs) for both the full and simple models with only four NIHSS items (consciousness, gaze, motor arm, and dysarthria) were similar in predicting 6-month mortality (0.83 vs. 0.83, $p = 0.51$) and poor functional outcomes (0.83 vs. 0.81, $p = 0.51$). Compared to the full score, the coefficients for the simple models in the derivative and validation cohorts were 0.89 and 0.89, respectively, for mortality, and 0.59 and 0.60, respectively, for functional outcome.

Conclusion: A simple assessment using a 4-item NIHSS can be used to predict mortality and functional outcomes in patients with acute stroke, with predictive value as good as the full NIHSS score.

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1351

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Stroke

Neurosarcoidosis presenting with cerebral vasculitis: case report

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Background: Neurological involvement may occur in 5–10% of sarcoidosis cases, rarely manifesting as cerebrovascular disease.

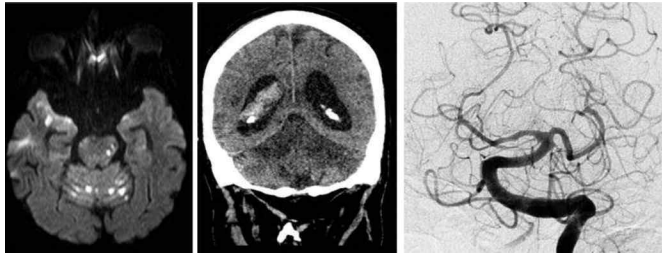
Objective: To describe a rare occurrence of cerebral vasculitis in a patient with previous diagnosis of neurosarcoidosis.

Material and Methods: Patient's wife written consent was obtained. We report a case of a 62 years old male with history of recurrent fever in association with skin and scleral lesions and hilar adenomegaly. Diagnosis of sarcoidosis was established and after a course of corticosteroids, the symptoms disappeared. Few months later, he developed behavioural changes without any systemic symptoms. MRI and serum ACE levels were normal. CSF was inflammatory with raised ACE levels. Diagnosis of neurosarcoidosis was made and corticosteroids treatment was prescribed, with partial clinical response.

Results: Few months later, the patient experienced multiple episodes of

transient ischemic attacks until first ischemic stroke affecting the left frontal lobe. During hospitalization, he presented four ischemic strokes in multiple territories. Arteriography exhibited multiple distal irregularities in all arterial territories, suggesting cerebral vasculitis. Even with corticosteroids, cyclophosphamide and intravenous immunoglobulin no response was observed and he died 4 weeks later.

Conclusion: Isolated neurosarcoidosis is a big diagnostic challenge and, owing to its life-threatening consequences, the recognition of cerebral vasculitis in these patients is necessary for proper treatment and, therefore, to achieve better clinical outcomes.



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1354 WFN15-0210 Stroke

Defining an international standard set of patient-centered outcome measures after stroke

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Background: Value-based healthcare delivery is a strategy to align patients, providers, and payers toward improving outcomes while reducing costs. We sought to define an international standard set of patient-centered, stroke health outcomes.

Methods: We assembled an international expert panel representing patients, advocates, and physician experts in stroke outcomes, stroke registries, global health, epidemiology, and rehabilitation. A modified Delphi process was used to reach consensus recommendations for a Standard Set of outcome measures, baseline risk adjustment variables, and included populations for use in both low and high income countries.

Results: Patients presenting to a hospital with ischemic stroke or intracerebral hemorrhage evaluated with brain imaging were selected as the required included population, with optional inclusion of transient ischemic attacks. Because of differences in ascertainment and imaging modalities, duration of symptoms and type of imaging are collected to allow for comparisons of homogeneous groups across various countries and practice settings. Basic functional status is assessed at prestroke baseline, index admission, discharge, 90 days, and 1 year thereafter. Comorbidities and stroke severity are collected for risk adjustment. Symptomatic intracerebral hemorrhage after thrombolysis is the only complication captured, and many measures reflect patient-reported quality of life outcomes and priorities captured in the Patient Reported Outcomes Measurement Information System 10-question short form (PROMIS-10) and elements from existing registries.

Conclusions: The stroke measure Standard Set is proposed for implementation to permit meaningful comparisons and increase value of stroke care worldwide using a simple, pragmatic strategy.

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1355 WFN15-0405 Stroke

Childhood arterial ischemic stroke: a review of risk factors

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Background: Childhood Arterial Ischemic Stroke (CAIS) is a rare, but serious medical condition, associated with both acute and long-term neurologic impairment. There is still a limited comprehension of the risk factors (RF) and their influence in CAIS.

Objective: Discuss the current understanding of RF in CAIS.

Materials and methods: A search was performed in Pubmed using “stroke AND childhood”. Only free full texts published in the last 5 years were considered. There were 28 results, of which 8 approached the subject of interest.

Results: The articles included in this analysis commented several conditions that may play an important role in CAIS. RF that have increased among children, adolescents and might be related to CAIS are the cardiovascular, obesity, hypertension, besides diabetes, dyslipidemia, alcohol, tobacco, drug abuse. Cardiac procedures, congenital heart disease, other cardiac abnormalities were also considered RF. CAIS happens in Sickle Cell Disease when the vaso-occlusive crisis affects the brain. It is also a common event in Moyamoya Syndrome, a disease characterized by progressive occlusion of cerebral vasculature. Hematologic conditions that cause CAIS include: inherited deficiency of proteins C, S, antithrombin, factor V, besides iron deficiency anemia, thrombocytosis, polycythemia. Metabolic disorders, preceding infections, migrane, and head and neck traumas (with stretching, tearing of the vertebral/carotid arteries) were considered too. However, 24% of cases are still idiopathic.

Conclusion: Understand RF is the first step to improve prevention and enable the development of adequate intervention strategies and, therefore, minimize the physical, mental burden of CAIS.

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1356 WFN15-1147 Stroke

Relationship between strokes, later seizures and epilepsy

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Background: Late-onset seizures, post stroke epilepsy are symptoms strongly linked to early-onset seizures in arterial ischemic stroke (AIS) in children, but it does not seem to occur in arterial hemorrhagic stroke (AHS). Epilepsy was also reported after neonatal cerebral sinovenous thrombosis.

Objectives: Highlight the relationship between early-onset seizures, late-onset seizures and post stroke epilepsy in pediatrics, analysing risk factors.

Materials and methods: A search was performed in Pubmed using “pediatric AND stroke AND epilepsy”. Only free full texts published in the last 5 years were considered. There were 18 results, of which only 5 approached the subject of interest.

Results: Acute seizures had frequency of 22–25.6% in AIS, 15–30% in AHS, 69% in cerebral sinovenous thrombosis. Late-onset seizure in AIS was

common in patients who presented acute seizures (frequency of 65%) and happened in 16.7–23.9% of all patients with AIS. Epilepsy was also high in patients with AIS and early-onset seizures (60% of cases) and happened in about 13–15.4% of all cases. Epilepsy showed little correlation with acute seizures in AHS. Later seizures, epilepsy in AIS were related with larger strokes. Early seizures in AIS was frequent in younger ages (3.4 ± 3.9 years) and in cortical involvements. Development of epilepsy in neonates with cerebral sinovenous thrombosis reached 18%.

Conclusion: The outcomes of strokes in children are an understudied subject and few articles, researches are available. Nevertheless, an acute seizure seems to be a risk factor for future development of epilepsy.

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1357

WFN15-0466

Stroke

Multimodal stepped care approach with acupuncture and palmitoylethanolamide for post stroke central Pain

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Introduction: Central Pain Syndromes (CPS) include i.a. thalamic pain syndrome, post-stroke syndrome. CPSP patients experience severe pain, sensory abnormalities, and emotional distress. Intolerable side effects hinder pharmacological pain control.

We report the multimodal approach of a refractory central pain post stroke patient with acupuncture and the natural compound palmitoylethanolamide (PEA), focusing on chronobiology and epigenetic factors involved in drug response and side effects.

Institutional board waived the requirement for formal approval.

Case report: A 37-year female patient suffered stroke with thalamic pain and discomfort in the right body half. Pharmacological treatment was insufficient. After two years left sided motor cortex stimulation was performed. After 16 years the patient attended the pain clinic with severe refractory pain, major drug side effects, distress, obesity, sleep disorders, and no social life.

Treatment consisted of methadone 120 mg and duloxetine 120 mg. Acupuncture resulted in instable pain reduction. We added PEA, vitamin D and nutritional rehabilitation. Pain stabilized with better response to the same dose methadone. The patient recovered sleep, lost weight, improved daily activity, social contacts, and took the first vacation since 20 years.

Conclusion: This multimodal approach influencing neuropathic pain via the modulation of non-neuronal cells (glial and mast cells) is a promising strategy.

Acupuncture and PEA, added the classical analgesics are safe treatments for neuropathic pain. Acupuncture increases brain activity in regions closely associated with a wider pain matrix responsible for modulating both the sensation and affective pain perception.

This treatment deserves further investigation and the development of targeted treatment strategies

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1358

WFN15-0665

Stroke

Admission clinical characteristics associated with thrombolytic treatment in aortic dissection related ischaemic stroke

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Background: Cerebral ischaemic stroke is an important neurological manifestation of acute aortic dissection and use of rt-PA in this setting may be catastrophic. Some findings may alert to possible presence of aortic dissection related stroke (ADRS) in acute stroke protocols avoiding risk of thrombolysis and directing to proper treatment.

Objective: Identify useful admission findings that alert to potential cases of ADRS in time constraints of thrombolytic decision.

Patients and methods: Three new local cases of ADRS were added to cases found in literature. Characteristics were extracted and association with risk of receiving thrombolytic evaluated. Local Institutional Review Board (IRB) exempted individual consent.

Results: Arrival at end of thrombolysis window time was significant associated with risk to receive rt-PA (t -test 0.05, df 20 = 2.28, p = 0.03, 95%CI of difference 3.7 to 80.9). ADRS cases presented with normal or low blood pressure and no hypertension history showed a trend to be more likely in treated group as finding of asymmetrical pulse on admission.

Conclusion: Decision as earlier as possible and before the end of a relatively narrow window without complete etiology investigation may be a risk to treat ADRS with thrombolysis. A bigger sample is necessary to confirm utility of asymmetrical pulse and absence of hypertension as red flags demanding exclusion of ADRS before thrombolysis.

Table 1 Characteristic between treated and non-treated patients:

	Thrombolysis withhold 13(47%); Thrombolysis treated 15(53%);		
	(mean, sd)	(mean, sd)	
Sex Male	5(35%)	6(42%)	Fisher Exact $p=1.0$
No Hypertension History	2(16%)	5(45%)	Fisher Exact $p=0.18$
Presence of Stroke risk factors	8(72%)	6(60%)	Fisher Exact $p=0.70$
Stroke localization Right hemisphere	11(78%)	10(71%)	Fisher Exact $p=1.00$
Loss of consciousness at onset	7(53%)	6(42%)	Fisher Exact $p=1.00$
Chest pain at onset	3(25%)	4(28%)	Fisher Exact $p=1.00$
Assimetric pulse on arrival	7(58%)	2(25%)	Fisher Exact $p=0.09$
Abnormal Xray	4(44%)	1(11%)	Fisher Exact $p=0.29$
Age (mean, sd)	65.2 (6.7)	64.5(11.2)	t test (0.05, df 21.2) $p=0.84$
NIHSS	14.4(6.5)	15.9(7.5)	$M-W$ U test (n 1=12 n 2=14) $p=0.78$
Medium blood pressure	91.4(27.9)	89.6(27.9)	t test (0.05, df 25) $p=0.86$
Systolic blood pressure	130.0(34.3)	126.5(30.2)	t test (0.05, df 25) $p=0.78$
Diastolic blood pressure	72.2(25.8)	71.0(30.1)	t test (0.05, df 25) $p=0.91$
Time to treatment decision	96.0(47.4)	138.3(39.3)	t test (0.05, df 20) $p=0.03^*$

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1359

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Stroke

Stroke: a retrospective study of gender differences

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Background: Stroke is among the five major cause of morbidity and mortality in Brazil, thus making it is a serious public health problem. It is true that there are differences between men and women, especially, in how the different sexes are affected by loads of diseases, including stroke there, to which risk factors they are more exposed and how the disease unfolds in each.

Objectives: To raise the sex differences in stroke, especially with regard to risk factors.

Patients and methods: Cohort study, retrospective, through the analysis of 921 medical records of stroke patients admitted in a University Hospital School between 2008-2012.

Results: One can infer that men and women are not susceptible to the same risk factors. While women often have more intracranial hypertension and stenosis, men have more severe dyslipidemia and carotid stenosis. Even when affected by Stroke women have a history of hypercholesterolemia and atrial fibrillation, while men with a previous heart disease, smoking and excessive alcohol consumption. Men have etiology for atherothrombotic stroke, while cardioembolic women. Diabetes presented inconclusive results about gender differences.

Discussion: It seems us that there are considerable differences in how men and women are more or less exposed to the risk of stroke, however, the question that remains is how these differences are in fact significant? These differences are significant enough to consider different diagnoses between the sexes or differential treatment? To these questions we have to wait for further and more specific investigations, perhaps with control groups and intervention groups.

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1360

WFN15-0485

Stroke

Cerebrovascular manifestations of the antiphospholipid syndrome: report of 7 cases

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Background: Central nervous system involvement is the most prominent complication of antiphospholipid syndrome (APS). Neurological features are usually related to thrombo-occlusive events (cerebral venous thrombosis (CVT) and ischemic stroke (IS)).

Patients and methods: During the 17 past years, 44 patients were followed in the department of Internal Medicine for vascular APS. In this retrospective study we reviewed these cases; all data were collected from the medical records of patients with cerebrovascular manifestations (CVM).

Results: Among our series, only 7 patients had CVM (16%). Neurological manifestation revealed APS in all cases. The mean age of these patients was 41.4 years, 3 were male (42.86%). APS was associated with Behçet's disease in one case. Diagnosis of APS was confirmed by positive IgG anticardiolipin in 5 cases (2 positive tests at 3 months interval) and presence of lupus anticoagulant in 2 cases.

Clinical symptoms included intracranial hypertension (ICH) in three cases and focal neurological deficit (4 cases). MRI showed CVT in 3 cases (ICH) and multiple ischemic lesions frequently in the middle cerebral artery's territory (4 cases).

Patients with CVT received full-dose anticoagulation, associated to oral corticosteroids and cyclophosphamide for the patient with Behçet's disease. Outcome was good in these 3 patients. Patients with IS were treated by anticoagulation (3cases) or antiplatelet agent (1case). All patients have none associated cardiovascular risk factor; outcome was favorable without recurrence of IS.

Conclusion: Screening for antiphospholipid antibodies should be performed in young patients presenting recurrent episodes of IS and in patients with CVT of undetermined origin.

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1361

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Stroke

Cerebrovascular diseases complicating Crohn's disease

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Background: Crohn's disease (CD), a chronic inflammatory bowel disease (IBD), may be responsible for various neurological complications but they are unusual and only few cases reported in the literature. They are dominated by cerebrovascular diseases (CVD). Their pathogenesis is unclear and the treatment remains controversial. We report here two cases of CD with neurological complications occurring during episodes of increased disease activity.

Method: We conducted a search in the database of our department to identify patients with IBD and neurological complications. We found two cases of CD and CVD, their medical records were reviewed retrospectively.

Results: The first case was a 39 year-old women with 22 years history of CD, admitted for status epilepticus. Brain MRI showed superior sagittal sinus thrombosis with hemorrhagic infarct of the right frontal lobe. The second case, a 37 year-old man with no medical history, presented generalized tonic clonic seizures. MRI disclosed multiple subcortical small infarcts. He reported episodes of bowel dysfunction with glairy and bloody diarrhea. Endoscopy showed characteristic pattern of CD. They received anti-epileptic drugs associated to low molecular-weight heparin in the first case. The outcome was fatal for the first cast (death within 5 days), a progressive improvement was observed in the second.

Conclusion: Gastroenterologist must be aware about neurological complication of CD particularly during episodes of disease activity. If neurological symptom occurs, patient should be referred early to neurologist to avoid fatal outcome and neurological deficit. Pathogenesis of CNS involvement seems to be multifactorial including inflammation and coagulation abnormalities.

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1362

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Stroke

Primary and secondary stroke prevention for patients with atrial fibrillation in Latvia

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Background: Atrial fibrillation is one of major risk factors of cerebral infarction. Oral anticoagulant admission is the only proven method of reducing the risk of cardioembolic stroke.

Objectives: Evaluate the use of antitrombotic medication in primary and secondary stroke prevention.

Material and methods: In a prospective study were included all 247 patients with ischemic stroke and atrial fibrillation admitted at the P.Stradins Clinical University Hospital Riga, Latvia from 1.01.14.-1.07.14. Information was collected about the use of medication and CHA₂DS₂-VASc score was calculated before the onset of stroke. Discharged patients or their relatives were interviewed by phone after 180 days. Standardized questions were asked about the use of secondary prevention medication, 4 patients groups (according to prescribed medication) were compared accordingly.

Results: CHA₂DS₂-VASc score before the onset of stroke was calculated using non-parametric tests. Calculated median = 4, mode = 4. Of 247 patients before the onset of stroke 51.4% didn't use any antithrombotic medication, 40.1% were using antiplatelet agents, 8.1% warfarin, 0.4% TSOACs. On discharge 5.5% patients were not prescribed antithrombotic medication, 25.6% patients were discharged on antiplatelet agents, 36.1% on warfarin and remaining 22.8% on TSOACs. 180 days after discharge 111 stroke survivors were contacted- 4.5% were not using any antithrombotic medication, 24.3% patients were using antiplatelet agents, 48.6% on warfarin and 22.5% TSOACs.

Conclusion: In Latvia cardioembolic stroke primary and secondary prevention is insufficient. Stroke severity and in compliance of patients limit the use of oral anticoagulants after stroke. Use of oral anticoagulants is a cornerstone of primary and secondary stroke prevention.

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1363

WFN15-1538

Stroke

Intravenous thrombolysis in acute ischemic stroke of nonagenarian patients: a single center experience in Chile

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Background: Alteplase is effective for treatment of acute ischemic stroke and benefit did not seem to diminish in patients over 80 years, but risk/benefit balance in nonagenarian patients are still controversial.

Purpose: To present the experience of IV thrombolysis in nonagenarian patients in a university hospital in Santiago, Chile.

Methods: Prospective database on EpiInfo of all patients who were seen acutely from January 1998 to December 2014. All patients underwent an institutional protocol for imaging and thrombolysis. Informed consent given by all patients/caregivers. We did descriptive statistics for each value, ANOVA, Bartlett's and Mann-Whitney/Willcoxon Test for comparisons.

Results: 1675 consecutive patients included, 145 (8.6%) were nonagenarian. Of these, 69% were female. 25 (7.8%) patients underwent thrombolysis. Median, range and 25%-75% interquartile (IQ) of NIHSS at arrival: 15 (3-29; IQ 9-21) in the thrombolysed group vs 6 (0-42; IQ 3-15) in the non thrombolysed group. We compared thrombolysed vs not thrombolysed patients at discharge: 6.3% vs 39% had Rankin 0-2; 25% vs 52.8% had Ranking 0-3; 18.8% vs 8.1% died. Symptomatic hemorrhagic transformation occurred in 27.3% vs 4.9%, of which 18.2% vs 1.6% were fatal. No significant difference in atrial fibrillation, diabetes, smoking and dyslipidemia between both groups was found.

Conclusions: IV-tPA should be used with caution in nonagenarian. In this sample, thrombolysed patients had higher NIHSS score at admission, a low probability of being discharged independent and greater risk of symptomatic and fatal intracranial bleeds.

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1364

WFN15-0969

STROKE

Head position in stroke trial (Headpost): an international cluster randomized trial

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Background: Limited evidence exists over the optimal head position in patients with acute ischemic stroke (AIS) or intracerebral hemorrhage (ICH). Potential benefits of lying flat in AIS (increased collateral blood flow) and sitting up in ICH (reduced cerebral edema) may be offset by increased risks of aspiration pneumonia and cardiac-respiratory failure.

Aims: To compare the effects of lying flat (0°) with sitting up (≥30°) head position in the first 24 hours of admission for patients with acute stroke on poor outcome (death or disability) at 90 days.

Methods: A multicenter, prospective, cluster randomized, crossover, blinded outcome assessed, clinical trial in 140 hospitals in Australia, Brazil, Chile, China, Taiwan, and United Kingdom. Key aspects of the study to avoid bias include consecutive recruitment (selection bias), thorough preparation and training of site staff (compliance and overcome local barriers) and central blinded outcome assessment (observer bias). Sample size is calculated on each hospital recruiting 140 consecutive patients. Funding from the National Health and Medical Research Council (NHMRC) of Australia.

Results: Set-up of the study was performed during 2014 in 7 countries and expression of interest received from 130 hospitals. Ethics Committee approval was granted in the various countries. Patient recruitment started in February 2015 and will continue during 2015-2016.

Conclusions: Cooperation, training and communications are essential to setting up and conducting the study. Given uncertainty over benefits: risks, reliable randomized evidence is required to standardize clinical and nursing practice.

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1365

WFN15-0503

Stroke

Cerebral perfusion and cognitive status before and in early period after carotid endarterectomy for symptomatic internal carotid stenosis

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Background: Atherosclerosis of extracranial and intracranial arteries is regarded as an origin of 25% of ischemic strokes. Carotid endarterectomy (CEA) is a routine surgery for secondary prophylaxis of stroke in patients with symptomatic internal carotid artery stenosis. Nevertheless, it is still unclear, if the removal of atherosclerosis plaque from internal carotid artery (ICA) leads to improvement of cerebral perfusion and cognitive functions.

Goal of our study was to estimate cerebral perfusion and cognitive status before and after CEA for atherothrombotic ischemic stroke.

Materials and methods: 23 patients (20 [86%] male, 3 [14%] female, mean age 61.5 ± 6.7) operated by CEA for atherothrombotic ischemic stroke were included in our study. Pre- and postoperatively all patients were studied by cognitive status scale (MMSE, MoCa), cognitive evoke potentials (P-300), ultrasound scan of brachiocephalic arteries, transcranial duplex scan of intracranial arteries, MRI of brain, SPECT with 99mTc-HMPAO .

Results: Improvement of cerebral perfusion in affected hemisphere was demonstrated after CEA. SPECT of affected hemisphere showed that perfusion index in gyrus temporale superior, gyrus temporale medium and thalamus increased from 70.73% to 78.66% ($p = 0.01$), from 82.20% to 87.37% ($p = 0.04$), and from 58.7% to 68.99% ($p = 0.009$), respectively. Improvement of cerebral perfusion in our study has not resulted in cognitive improvement: mean MMSE pre- and postoperatively appeared to be 26.1 ± 2.24 and 26.1 ± 1.14 ($p > 0.05$), respectively; mean MoCa pre- and postoperatively were 27 ± 2 and 27.3 ± 1.1 ($p > 0.05$), respectively. This data corresponded results of neurofunctional study: P-300 latency of cognitive evoke potentials pre- and postoperatively were 392.1 ± 49.5 msec and 37.8 ± 46.1 msec ($p > 0.05$), respectively.

Conclusions: CEA for symptomatic ICA stenosis results in improvement of cerebral perfusion in affected hemisphere, but not associated with cognitive improvement in early period after surgery.

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1366

WFN15-1589

Stroke

Flattening peak systolic in transcranial doppler (Meseta Sign) as a small vessel disease manifestation

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Introduction: Previously has been reported a relationship between increased Pulsatility Index (PI) of intracranial arteries from Transcranial Doppler (TCD) and small vessel disease (SVD). Recent studies in our group shows disappointment with this fact. Instead we have exposed that the flattening of systolic peak in TCD (Meseta Sign) has a directly relationship with SVD.

Objective: Demonstrate sensibility and specificity of Meseta Sign in diagnosis of SVD.

Methodology: From 707 TCD, were selected 134 patients with an available and complete MRI. In order to establish sensibility and specificity, four groups were designated: 1. Normal TCD or another diagnostic without Meseta sign and without WMH. 2. Meseta sign and WMH. 3. Normal TCD or another diagnostic without Meseta sign and WMH. 4. Meseta sign and without WMH. Exclusion criteria: patients without TCD window, other demonstrable etiology as the cause of WMH, and patients in acute stroke.

Results: There were 42 patients (men 52%, women 47%, mean age 69.1 years). 14 in group 1 (mean age 62.2); 19 in group 2 (mean age 73.5); 9 in group 3 (mean age 76.6); and 0 for group 4. The sensibility was 68%, specificity 100%, prevalence 67%, PPV 100%, NPV 61%, positive OR "infinity", negative OR 32%. The sensibility is conditioned by being a retrospective study.

Conclusion: Meseta sign is directly related to SVD, the patients with

WMH and without this sign has another etiology or underlying cause. Currently a double blind prospective study is in course in our group.

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1367

WFN15-0149

Stroke

Emergency open embolectomy for cardioembolic cervical internal carotid artery occlusion

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Background: A cardioembolic cervical internal carotid artery (ICA) occlusion is uncommon, and is associated with a poor stroke outcome as well as intracranial ICA occlusion. Various procedural approaches to acute recanalization for this type of occlusion have been reported; however, a standard treatment has not been established.

Patients and methods: We here present a rare case of cardioembolic cervical ICA occlusion treated by open embolectomy. The patient was a 68-year-old woman who presented with unilateral transient weakness of a left extremity after a brief loss of consciousness. MRI showed scattered small acute infarcts in the right frontal lobe and right ICA occlusion. Clinical examinations suggested the occlusion was cardioembolic in origin. She underwent emergency open embolectomy, and the embolic material was successfully removed without complication.

Results: Postoperative angiography confirmed complete recanalization of the right ICA and no distal embolic occlusions. The patient was discharged without any neurological deficits.

Conclusion: Emergency open embolectomy is an attractive treatment option for patients with cardioembolic cervical ICA occlusion, because it is similar to carotid endarterectomy but technically easier to perform.

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1368

WFN15-1433

Stroke

Stroke among the young - case report

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Patient S.E., 32 years of age, hospitalized due to gradually formed disorders of speech and the right hand weakness which in the next 24 hours turned into paralysis. Four years back, the patient was treated for hypothyroidism, glucose intolerance, and in the last three years investigated for suspicion of systemic lupus erythematosus. Also treated several times in hematology due to thrombocytopenia.

Upon receipt: patient aware, cardiorespiratory compensated, heart function rhythmic RR 125/85, fr about 86/ min. Test results of abdomen, liver and spleen came out clean. Limbs without swelling.

Neurological examination: shallower nasolabial folds to the right, in terms of speech: motor aphasia. Limbs on the right side had cerebral hemiplegia. NIHSS: 12.

Throughout the stay, series of laboratory researches were carried out. Due to low platelets (39) hematologist was consulted, then angiologists who excluded the existence of peripheral thrombosis, and pointed out the necessity of continuing anticoagulant protection, regardless of the number of platelets. Because of anticoagulant therapy, values of coagulation factors and platelets were daily

controlled. Relevant tests done / MRI of brain / more ischemic lesions which consequently gave paralysis on the right and speech disorder were found. Mild physical rehabilitation was done during the conducted stay. After consulting the hematologists, angiologists, rheumatologists and diabetologists, it was concluded that the word was about a relapsing ischemic stroke caused by an underlying disease - systemic lupus with secondary atiphospholipid syndrome. After twenty-two days, with the agreement of psychiatrists, patient was moved to a physiotherapy and rehabilitation clinic.

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1369

WFN15-1366

Stroke

Delayed gelatinase inhibition induces reticulon4 receptor expression in the peri-infarct cortex

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Background and purpose: Despite improved outcomes of contemporary stroke treatment, the risk of intracranial bleeding complications remains high. Matrix metalloproteinase (MMP) activity is a possible target in preventing hemorrhagic transformation, however the delayed MMP inhibition blocked functional recovery in stroke experiments. Our aim was to identify potential mechanisms responsible for the impaired recovery associated with sub-acute metalloproteinase inhibition in the middle cerebral artery occlusion (MCAO) model.

Methods: We used transient MCAO to induce focal brain ischemia in CD rats (n = 5/group). Gelatinase inhibition was achieved by intracerebral injection of Fn-439, a broad-spectrum MMP inhibitor 7 days after stroke. On day 9, the animals were sacrificed, and treatment efficacy was confirmed by in-situ gelatin zymography. The peri-infarct cortex was identified by tetrazolium-chloride (TTC) staining, and tissue samples were dissected for TAQMAN array gene expression study. Based on literature data we selected 84 genes influencing post-stroke regeneration, and confirmatory western blot analyses were carried out afterwards.

Results: Out of the 84 genes tested, 4 showed altered mRNA expression in the treated animals. We demonstrated significant mRNA upregulation for the Reticulon 4 receptor (Rtn4r), while borderline expression changes were seen for three additional genes (DCC, Jun, Ngfr). Western blot analysis confirmed significantly increased Rtn4r protein abundance.

Conclusion: Pharmacological inhibition of the gelatinase activity one week after focal ischemia increases the expression of the Rtn4 receptor, a primary component of the NOGO inhibitory pathway, potentially contributing to the previously documented impaired regeneration associated with delayed MMP inhibition.

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1370

WFN15-0652

Stroke

Diabetes mellitus and previous ischemic stroke in stroke thrombolysis: analysis of sits-East registry data

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Background: The European drug license for alteplase and current recommendations for ischemic stroke excludes from intravenous thrombolysis (IVT) patients with diabetes mellitus and previous ischemic stroke (DM + pIS positive).

Objective: Our aim was to evaluate safety and effectiveness of IVT in stroke patients with diabetes mellitus and previous ischemic stroke.

Material and Methods: We analyzed the data from the register SITS-EAST between January 2002 and August 2013. DM + pIS positive and DM + pIS negative groups of patients were compared with respect to safety (symptomatic intracerebral hemorrhage [sICH]) and efficacy (modified Rankin scale [mRS]). Adjustment for baseline difference was performed with general estimating equation.

Outcome: Of 12888 patients treated with IVT, 465 (4%) had DM + pIS. DM + pIS positive group had more severe ischemic stroke (median NIHSS score 12 versus 11) and less frequently prestroke mRS 0-1 (70% versus 89%, $P < 0,001$) as compared to DM + pIS negative patients. DM + pIS positive patients had significantly lower adjusted odds to achieve mRS 0-1 (OR 0.69; 95% CI: 0.51-0.94) but not functional independence at 3 months (mRS 0-2, OR 0.75; 95% CI: 0.48-1.17). Adjusted odds for death (OR 1.32; 95% CI: 0.96-1.82) or disability was not significantly increased. No association between sICH and DM + pIS was found (e.g. for MOST definition of ICH, OR was 1.73; 95% CI: 0.88-3.39).

Conclusion: Patients with diabetes mellitus and previous ischemic stroke do not have increased risk of sICH, death or disability, but achieve less favorable outcome. Patients with diabetes mellitus and previous ischemic stroke should not be excluded from thrombolytic treatment.

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1371

WFN15-0732

Stroke

Oxidant-antioxidant status and plasma nitrite levels in patients with carotid and/or vertebrbasiller artery atherosclerosis in doppler Usg

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Atherosclerosis in carotid and/or vertebral arteries is important in ischemic cerebrovascular disease. Oxidative stress may have role in the formation of atherosclerotic changes in the extracranial arterial system.

In the present study, plasma nitrite levels and oxidant-antioxidant status of fifty-nine cases with atherosclerotic changes of carotid and/or vertebral arteries (revealed by Doppler USG) were compared with the results of the 33 control cases. Associated systemic diseases, and biochemical and serological test results in both groups were also noted. We obtained patient and Institutional Review Board approval, as necessary.

Bilateral intimal thickening in the carotid arteries was the only finding in Doppler USG in 11 out of 59 cases (intimal thickening group). Mean plasma TAS level was significantly higher in the patient group ($p = 0.025$), however mean plasma nitrite and TOS levels and OSI didn't show any significant differences ($p = 0.634$, $p = 0.844$, and $p = 0.840$, respectively). TOS and OSI values of the intimal thickening group were higher than the values of the rest of the patient group (respectively; $p = 0.004$ ve $p = 0.036$) whereas TAS and nitrite levels were similar (respectively; $p = 0.586$ ve $p = 0.316$).

In conclusion, low TAS levels in the patient group may indicate the role of oxidative stress in the atherosclerotic changes in the carotid and vertebral arteries. However, whether it is the cause or the consequence, is not clear yet. The significantly higher serum TOS levels and OSI in the intimal thickening group than the rest of the patient group may indicate some differences in the pathophysiological mechanisms of these two atherosclerotic states.

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1372
WFN15-0976
Stroke

Stroke as the initial manifestation of infective endocarditis

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Objectives: To characterise the initial clinical factors leading to the diagnosis of infective endocarditis in patients who first present with acute stroke.

Methods: Retrospective review of consecutive patients who present with acute stroke to a single tertiary hospital from August 2004 to September 2014, and were subsequently found to have definite infective endocarditis based on Duke criteria.

Findings: Records of 18 patients with acute stroke and subsequent diagnosis of definite infective endocarditis were retrieved. The patients' age ranges from 20 to 73 years. All except 4 patients (78%), presented with fever either prior to or within 48 hrs of admission. 15 patients (83%) had elevated leucocytes count and all (100%) had elevated CRP level on admission. 11 patients (61%) had a new cardiac murmur or worsening of a known murmur. 13 of the 18 strokes (72%) were ischaemic, 5 (28%) were haemorrhagic (3 ischaemic infarction combined with SAH, 2 haemorrhagic infarction with SAH). 11 patients (61%) had stroke in two or more vascular territories. Of the 7 patients (39%) who had stroke in one vascular territory, 3 had TACI, 3 had POCI, 1 had PACI and none had LACI. 7 patients (39%) had risk factors of valvular heart disease and intravenous drug abuse.

Conclusion: Infective endocarditis is a rare cause of stroke. Unexplained fever accompanying a stroke in the presence of valvular disease, elevated leucocytes and CRP, infarctions in two or more vascular territories or infarction with unexplained SAH on neuroimaging during admission should prompt careful evaluation for infective endocarditis.

This study has obtained Institutional Review Board approval.

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1373
WFN15-1218

Stroke

Fabry-Anderson disease and stroke: how much do we know and when we should suspect it

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Background: Fabry disease (FD) is progressive x linked inherited disorder of glycosphingolipid metabolism due to deficient or absent lysosomal a galactosidase A activity. We had done a questionnaire involving 489 stroke neurologist, to understand the knowledge and the management of FD in Italian Stroke Unit.

Methods: We used Delphi method, which gave us a range of score, from 1, meaning total disagreement to score 5 which means full agreement. Score 1,2 > 66% disagreement, score 3,4,5 > 66% agreement, score 1,2,0,3,4,5 = 66% no consensus.

Results: 85.5% of neurologist agree to consider stroke in younger <50 years.

83.3% test patients with cryptogenetic stroke.

69.1% agree to test GLA in young patients with hemorrhagic stroke.

81.2% will consider for the FD only the patient with lacunar stroke and leukoariosis without a history of hypertension, 76.6% check FD only in young patients with white matter lesions.

88.5% test FD only in patients with posterior circulation, dolicoectasia and stroke in younger, 87.7% think that an unknown stroke can be suspicious of FD without any gender difference, 76.7% consider FD only if the patient shows other signs of the Fabry disease and not only a stroke. 92.9% test GLA for male and 73.3% for female, 90.1% test molecular analysis for male and 96.2% for female.

Conclusion: Fabry disease is underestimated. The FD is well known to Neurologists. Some other signs can help the diagnosis, We must test GLA in patients with different stroke types and increase knowledge because FD is curable.

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1374
WFN15-1411
Stroke

SPG stimulation for treatment of acute ischemic stroke in a 24 Hour window from stroke onset

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Our center St. Sava hospital, Belgrade, Serbia have been taking part in the last two years in a clinical study called ImpACT24B trial.

The study tests the efficacy and safety of a medical device aimed to electrically stimulate the Spheno-Palatine Ganglion (SPG) in acute ischemic stroke patients in a 24 hour window from stroke onset.

The SPG is a parasympathetic nerve center located behind the maxillary sinus next to the nasal cavity. There are two SPG centers, one at each side of the face, each innervating the ipsilateral anterior vasculature of the brain.

Electrical stimulation of the SPG induces cerebral vasodilatation. This leads to increased blood flow to the brain, an effect mediated by the of NO (Nitric Oxide). This phenomenon has a broad range of potential applications and can be used for both acute or chronic

indications. An example for acute stimulation, is the case of acute ischemic stroke, where blood circulation has been compromised. SPG stimulation can increase perfusion to the areas suffering from reduced or lack of blood supply, and help save brain tissue.

The device is implanted by neurologists in a minimal invasive bed-side procedure under local anaesthesia. The device was tested to date in ~1000 acute ischemic stroke patients. In 2 previous clinical studies SPG stimulation demonstrated good safety profile and a promising clinical effect, and currently is being tested in a confirmatory pivotal trial, ImpACT-24B.

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1375

WFN15-0038

Stroke

Cerebral venous thromboembolism complication of isotretinoin use: a case report

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Background: We report a 27-year-old woman with any risk factor for thromboses who presented with right hemiparesis due to left transverse venous sinus occlusion associated with isotretinoin use for acne.

Case presentation: A healthy 27-year-old woman, with no significant past medical history, presented with sudden onset of headache, vomiting, right hemiparesis and unconsciousness associated with convulsions. She had a history of taking isotretinoin for acne for the last 2 months. A magnetic resonance scan of her brain showed the presence of cerebral infarction of left thalamic area, magnetic resonance venography ultimately revealed left transverse sinus thrombosis. Treatment with anticoagulation recovered her from headache but not from hemiparesis.

Conclusion: Isotretinoin is one of the most used treatment modality in many patients with acne. However, isotretinoin use can be associated with life-threatening thrombotic side effects especially in young patients. Physicians must be more alert to be aware of this side effect.

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1376

WFN15-0787

Stroke

Head position in stroke trial (Headpost) pilot phase

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Background: Controversy exists over the optimal head position in acute ischemic stroke (AIS) patients in the first 24–48 hours. Interventions that augment cerebral blood flow (CBF) could be beneficial. The simplest way to do this could be to place the head in 'lying flat' rather than 'sitting up' position. Potential benefits may be offset by an increased risk of pneumonia or cardiac failure.

Aims: HeadPoST Pilot will determine the safety, feasibility and potential efficacy of the 'lying flat' compared to the standard 'sitting up' head position in AIS patients.

Methods: Cluster randomized, open, blinded endpoint assessment, active-comparative, international clinical trial. Patients are included if within 12 hours from symptom onset, anterior circulation infarction, NIHSS ≥ 1 and adequate sonographic window. Main efficacy outcome is mean CBF velocity in the 'lying flat' compared to the 'sitting up' head position assessed by Transcranial Doppler (TCD) to the middle cerebral arteries. Secondary objectives are safety and neurological status at 7 days and disability at 90 days. A sample size of 32 clusters (mean 3 patients) was calculated to detect an 8.3 cm/s increase in CBF velocity (IC 95% 4.82 a 12.03) with 90% power, 5% significance.

Results: The study has included 81 patients (32 clusters) as of April 2015 in 3 centres. No safety concerns have been raised by the DSMB. **Conclusions:** This pilot phase will finish recruitment soon. The lying flat head position is a potential low cost, widely applicable, nursing intervention to increase CBF in AIS and may improve clinical outcomes.

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1377

WFN15-0792

Stroke

Clínica Alemana de Santiago cerebrovascular disease registry (RECCA): a single center seventeen-year prospective project

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Background: Stroke is the leading cause of death and disability in low- and middle-income countries. In Chile it is the first cause of death. Hospital registries are useful to describe risk factors, distribution of stroke subtypes and patterns of care. They are a source of hypothesis generating analytical studies and they help to evaluate changes in care process and the uptake of interventions suggested by clinical evidence in real health conditions as well as quality control of care.

Objective: To describe a large prospective single center stroke registry and its main outputs.

Patients and methods: Clínica Alemana is a 500-bed tertiary care non-for-profit private academic medical center, serving a population of approximately 400,000 inhabitants. All consecutive patients with acute stroke admitted to our institution are prospectively included in the registry. We use standardized definitions for stroke diagnosis and classification. All data is stored using Epi-Info. The registry has undergone several modifications. The project has ethics committee approval.

Results: Between December 1997 and December 2014, 2703 cases were included in the registry. The pathological distribution was 2239 ischemic strokes, 334 intracerebral hemorrhages and 130 subarachnoid hemorrhages. Mean ages (SD) are 69 (16), 66 (17) and 54 (13), respectively. Eight papers in peer-reviewed journal have been published and more than 30 abstracts presented in national and international meetings with data from the registry. Many of the analyses have resulted in protocol changes to improve care.

Conclusion: RECCA is an ongoing very productive single center stroke registry, both scientifically and in clinical practice.

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1378

WFN15-1257

Stroke

Detection of the JAK2-V617F mutation in a patient with unexplained strokes. Clinical clues to go beyond the conventional “Hypercoagulable Panel”K. Orjuela, J. Biller. *Neurology, Loyola University Chicago, Chicago, USA*

Background: Myeloproliferative diseases (MPD) are a group of diseases with increased proliferation of one or more subtypes of myeloid cells. There are three types of MPD: essential thrombocythemia, polycythemia vera, and primary myelofibrosis. JAK2-V617F mutation is a useful tool in the MPD diagnosis. The association of cerebrovascular diseases (CVD) secondary to the MPD has been established, whereas the indication for regular testing in patients with unexplained strokes remains unclear. The incidence of JAK2-V617F positive mutation in CVD has been analyzed in patients with ischemic strokes and cerebral venous thrombosis. Prior studies demonstrated a reasonable indication for JAK2-gene mutation testing in patients presenting with unexplained strokes associated to thrombocytosis, elevated hemoglobin and hematocrit (in absence of inherited or acquired thrombophilia). 18–53% of patients with prior splanchnic venous thrombosis and JAK2-V617F mutation suffered a latent MPD.

Objective: To highlight the clinical presentation of a patient with prior splanchnic venous thrombosis and unexplained recurrent strokes as a guidance for the detection of JAK2-V617F mutation, hence the diagnosis of MPD.

Patients and Methods: A 45 year-old woman with history remarkable for prior portal vein thrombosis at the age of 35, migraines with visual auras, patent foramen ovale; presents for evaluation of recent right middle cerebral artery territory infarct(s). On examination noticed malar rash, livedo reticularis and hepato-splenomegaly. Comprehensive work up excluded cardioembolic and autoimmune etiologies; an heterozygous MTHFR mutation was found in prior hypercoagulable evaluation.

Results: Biallelic mutation of JAK2-V617F was detected.

Conclusion: MPD should be suspected in patients with ischemic strokes and history of prior arterial/thrombotic events in absence of positive “conventional” hypercoagulable work up. In patients with history of ischemic stroke and prior splanchnic thrombosis, strongly suspect MPD and consider JAK2-V617F mutation testing.

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1379

WFN15-1247

Stroke

Cerebral venous thrombosis in a patient with down syndromeJ. Ortiz Garcia, R. Coates, J. Biller. *Neurology, Loyola University Medical Center, Chicago, USA*

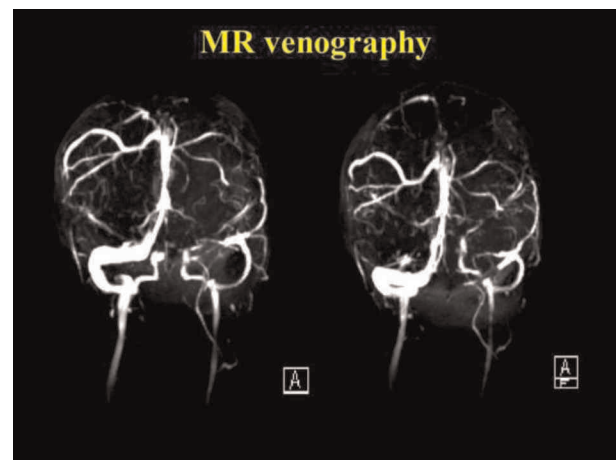
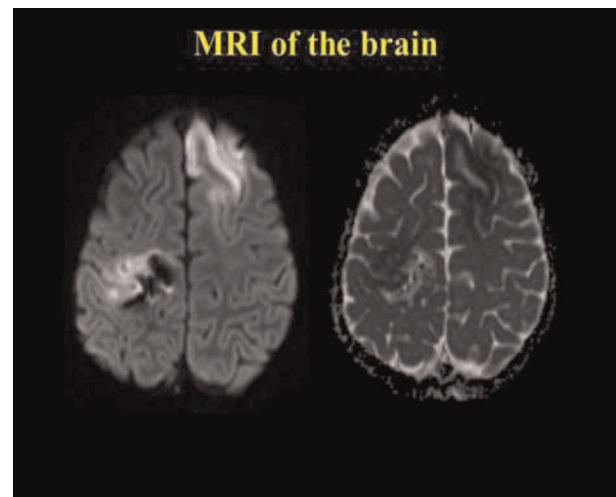
Background - Objective: Cerebral venous thrombosis (CVT) in children is a rare disorder with multifactorial etiology. We evaluated a boy with DS and acute lymphoblastic leukemia (ALL) with polyethyl glycol asparaginase induced CVT.

Design/Methods: Case report and literature review.

Results: An 8-year-old boy with DS recently diagnosed with ALL presented to emergency department (ED) with new onset seizures. His parents noted left arm jerking, eyes rolling to the left and unresponsiveness, followed by generalized tonic-clonic seizures lasting 2 minutes. He had two subsequent seizures, and received lorazepam and midazolam. He was on his third week of induction chemotherapy with intrathecal cytarabine and methotrexate, intravenous vincristine and asparaginase,

and oral dexamethasone. Head CT showed mixed hyper and hypodensities within the right frontal lobe, suspicious for intracranial hemorrhage. Brain MRI and MR venography (MRV) showed occlusion of the anterior aspect of the superior sagittal sinus (SSS), partial occlusion of posterior portion of the SSS, and a hemorrhagic venous infarct of the right frontal lobe. He received full anticoagulation with unfractionated heparin with transition to a vitamin K antagonist, and seizures prophylaxis with levetiracetam.

Conclusion: Causes of stroke in patients with DS include, Moyamoya disease, arterial dissection due to atlanto-axial instability, atherothrombosis, congenital heart defects, protein C, protein S, antithrombin III deficiencies and factor V Leiden mutation. While not direct association exist between DS and ALL with CVT, a few cases of CVT have been reported secondary to asparaginase, an antineoplastic drug known to cause depletion of clotting factors as well as anti-clotting factors.



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1380

WFN15-0494

Stroke

Brachial-Ankle pulse wave velocity is associated with acute cerebral small vessel diseaseK.Y. Park^a, Y. Kim^b, P.W. Chung^b, J.M. Kim^a. ^aNeurology, Chung-Ang University College of Medicine, Seoul, Korea; ^bNeurology, Kangbuk Samsung Hospital, Seoul, Korea

Background: There have been only a few studies investigating the association between arterial stiffness and acute cerebral small vessel disease (SVD), which showed conflicting results.

Objective: The aim of this study was to determine the association of brachial-ankle pulse wave velocity with acute SVD.

Patients and Methods: We identified 1145 consecutive patients with acute ischemic stroke who underwent both MR imaging and brachial-ankle pulse-wave velocity (baPWV) measurement. The association between baPWV and acute SVD was tested using linear and logistic regression analyses. This study was approved by the local institutional review boards.

Results: Mean age of patients was 68 (± 12) years. Mean baPWV levels were 20.7 (± 5.1) m/s in patients with large artery atherosclerosis, 20.7 (± 4.9) m/s in patients with cardioembolism, 21.3 (± 5.2) m/s in patients with small vessel occlusion, 17.8 (± 6.3) m/s in patients with other determined etiology, and 20.2 (± 5.1) m/s in patients with undetermined etiology. On bivariate analysis, a 1-SD increase in baPWV was associated with acute small vessel occlusion (OR, 1.16; 95% CI, 1.02 – 1.32). The association remained significant even after adjustment for confounders.

Conclusion: baPWV is associated with acute SVD. Our findings suggest that arterial stiffness is linked to the pathogenesis of SVD. In future trials, it should be tested whether arterial stiffness can be a therapeutic target for SVD.

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1381

WFN15-0631

Stroke

Effectiveness of intravenous tissue plasminogen activator for early neurological deterioration and outcome in cerebral branch atheromatous disease

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Background: The early neurological deterioration frequently occurs in patients with cerebral infarction due to branch atheromatous disease (BAD). The effectiveness of intravenous tissue plasminogen activator (tPA) is not known in these patients.

Objective: We evaluate the effectiveness of intravenous tPA for early neurological deterioration and outcomes by comparing with conventional anti-platelet treatment in patients with cerebral infarction due to BAD.

Patients and Methods: We retrospectively analyzed the data of 81 stroke patients due to BAD who have been admitted between January 2011 and July 2014 in our institute. Among these patients, we enrolled the patients who arrived at the hospital within 24 hours from onset. The patients were divided those into two groups depending on initial treatment modalities; intravenous tPA group and non-tPA group (only anti-platelet treatment without tPA). Early neurological deterioration and good outcome (modified Rankin score: 0-1) at 3 months were examined between two groups.

Results: Thirty-six patients with BAD were enrolled. ; 10 in tPA group and 26 in non-tPA group. Patients in tPA group showed no symptomatic hemorrhage. Early neurological deterioration occurred in 70% (7/10) of patients of tPA group and 50% (13/26) of non- tPA group ($p = 0.846$). The proportions of good outcome at 3 months were 20% (2/10) in tPA and 34.6% (9/26) in non- tPA group ($p = 0.394$).

Conclusion: Intravenous tPA seems not to prevent the early neurological deterioration adequately, and does not show better

functional outcome in patients with acute cerebral infarction due to BAD. More effective treatments are needed for prevention of the early neurological deterioration and better outcome in cerebral infarction due to BAD.

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1382

WFN15-0219

Stroke

Drip, ship, and on-demand endovascular therapy for acute ischemic stroke

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Background: The 'drip and ship' approach can facilitate early initiation of intravenous thrombolysis (IVT) at community hospitals. Further, new endovascular treatment modalities, such as stent retrieval, are being considered to improve the rate of safe and successful recanalization. We elucidated whether the drip, ship, and on-demand endovascular therapy paradigm is feasible and safe.

Methods: This was a retrospective study of prospectively registered patients with acute ischemic stroke who underwent endovascular recanalization treatment after IVT at our regional comprehensive stroke center between January 2011 and April 2014. Patients were divided into two groups according to the where IVT was performed: IVT at a community hospital (group I) or at our regional comprehensive stroke center (group II). Their clinical outcomes and neuroradiological findings were compared.

Results: In both groups, most patients underwent endovascular therapy with a Solitaire stent (81.9% vs. 89.3%, $p = 0.55$). Baseline clinical characteristics were similar. The proportions of long-term favorable outcomes (modified Rankin Scale, mRS ≤ 2 at 90 days) and successful recanalization (Thrombolysis in Cerebral Ischemia, TICI $\geq 2b$) were not significantly different ($p = 0.828$ and $p = 0.106$, respectively). The occurrence rates of symptomatic intracranial hemorrhage and hemorrhagic transformation were comparable ($p = 0.999$ and $p = 0.267$, respectively).

Conclusions: 'Drip, ship, and on-demand endovascular therapy' is a feasible and safe treatment concept for patients with acute large vessel occlusion of the anterior circulation. Careful patient selection and the use of a stent-retriever could reduce the recanalization therapy-related adverse events.

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1383

WFN15-0180

Stroke

Preischemic neuroprotective effect of minocycline and sodium ozagrel on transient cerebral ischemic Rat model

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Background: We investigated the neuroprotective properties of single doses of minocycline and ozagrel when administered prior to stroke.

Methods: Male Sprague-Dawley rats were assigned randomly to one of the following groups: (1) control (Con) group ($n = 10$), (2) minocycline (Mino) group ($n = 10$), (3) sodium ozagrel (SO)

group (n = 10). Rats were treated with a single dose of minocycline or ozagrel at 30 minutes before stroke. A middle cerebral artery occlusion (MCAO) was made at 30 minutes after drug administration and reperfusion was done. The rats were subjected to a neurobehavioral test at days 1, 3 and 7 after MCAO. The cerebral ischemic volume was quantified by MetaMorph imaging software after TTC staining. The neuronal cell survival and astrocytes expansion were assessed by the NeuN and GFAP immunohistochemistry staining. Apoptosis was detected by the TUNEL assay. We statistically analyzed and compared the results with each other.

Results: Mino and SO groups had neuroprotective effect and showed a better behavioral performance of adhesive removal and treadmill test at 7 days after stroke. Mino and SO groups also showed a smaller infarct volume than control group at 7 days after stroke. Immunohistochemistry staining showed a higher number of NeuN positive cells, lower activated astrocytes in GFAP and a lower apoptosis in TUNEL staining.

Conclusion: This study showed that single doses of minocycline and ozagrel prior to stroke had neuroprotective effects. These agents will be useful not only in post-stroke therapy but also in stroke prevention in several cerebrovascular procedures like carotid endarterectomy, bypass procedure, endovascular angioplasty, thromboembolism or thrombolysis.

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1384
WFN15-0182
Stroke

Comparison of hemispherectomy and Craniotomy in Supratentorial Spontaneous Intracerebral Hemorrhage

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Objective: Decompressive craniectomy (DC) is used regularly in large amount of supratentorial spontaneous ICH. However, consensus on DC surgery for ICH has not been reached. We conducted a retrospective study to assess the effect of DC on outcome of patients with spontaneous basal ganglia hemorrhage.

Methods: We evaluated the clinical, radiologic finding and outcome of large amount of supratentorial spontaneous ICH who performed hematoma evacuation. Supratentorial ICHs that exhibited a hematoma volume of over 50 mL according to the xyz/2 method were included in this study. We compared a hematoma removal plus DC group and a hematoma removal group (HR) with regard to GCS, preoperative hematoma volume, shift from the midline, time from ictus to surgery, post-surgical hematoma volume, brain swelling, hospitalization period and mRS after 3 months. Statistical analysis was done using the t-test or χ^2 test, and the odds ratio was calculated.

Results: 80 patients participated in this study. Mean age of DC and HR group was 72.6 and 74.3 years, respectively. GCS, preoperative hematoma volume, midline shifting, time from the ictus to surgery and postoperative hematoma volume were similar between both groups. Hospitalization periods increased in the DC group. The mRS after 3 months was similar for both groups. The factor relevant for mRS were age, postoperative hematoma volume, and GCS at 24 h after surgery.

Conclusion: DC is not necessary for spontaneous supratentorial ICH if the hematoma can be removed properly.

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1385
WFN15-1417

Stroke

Obscured by a puff of smoke: an intriguing case of cardioembolic stroke in a young man with coexisting Moya Moya disease

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Background: Moya Moya disease is a unique progressive cerebrovascular disease characterized by bilateral stenosis or occlusion of the large intracranial arteries with prominent arterial collateral circulation and has a high incidence among Asian population.

Objective: To highlight a case of cardioembolic stroke with coexisting Moya Moya disease.

Case: A 20-year-old Caucasian man was admitted to our Stroke unit after waking up with right-sided visual loss and headache after a night of heavy alcohol binge. He had a background of previous successful cardiac ablation for atrial flutter 5 years ago. He was in sinus rhythm and had a congruent right homonymous hemianopia without any other neurological deficits. The non-contrast CT brain was normal but the CTA showed distal left PCA occlusion and also an additional left M1 stenosis and occlusion raising the suspicion of underlying Moyamoya disease. MRI brain confirmed left occipital lobe infarction on DWI and MRA confirmed the findings of CTA. Secondary PCA stenosis from Moyamoya disease was ruled out after thorough review of imaging. Extensive investigations including 7-day holter, thrombophilia and autoimmune tests were normal. Transoesophageal Echocardiogram (TOE) was suggestive of possible left ventricular myxoma but this was ruled out by cardiac MRI. Neurosurgical review recommended conservative treatment of Moyamoya disease.

Conclusion: A final diagnosis of cardioembolic stroke due to paroxysmal atrial arrhythmia triggered by heavy alcohol intake with coexisting Moyamoya disease was established. The patient was discharged on daily aspirin as role of long term anti-coagulation in the context of prior cardiac ablation is unanswered.

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1387
WFN15-0768
Stroke

A pyrexial puzzle!

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Case Report: A 46 year old man presented with four days of headache, photophobia, diplopia and fever. He also had abdominal pain and weight loss for four months. On examination, he was pyrexial, systemic examination revealed right third nerve palsy and tongue deviation. Blood results showed a CRP of 72 and ALP of 262. He was treated with intravenous ceftriaxone and aciclovir for a presumed meningitis or encephalitis. CT and MRI head, MRA were performed, which were unremarkable. CSF findings were normal.

Subsequently, the patient developed ophthalmoplegia and bilateral seventh cranial nerve weakness. Repeat bloods showed rise in ALP to 462 and an ALT of 82. This prompted a CT chest, abdomen and pelvis to look for underlying malignancy which showed marked mucosal thickening of stomach and distal oesophagus, extensive lymphadenopathy in the upper para-aortic and coeliac axis and changes within both adrenals and right humeral head consistent with a primary gastric malignancy with extensive metastasis. The MRI images were re-reviewed and the radiologist added an addendum stating there appeared to be infiltration of clivus

secondary to metastatic infiltration. The diagnosis was confirmed upon performing an OGD. A large mass was visualised and gastric and oesophageal biopsies demonstrated infiltration by moderate to poorly differentiated adenocarcinoma.

Conclusion: This case illustrates how a variety of underlying pathologies may manifest themselves through neurological signs and symptoms. Therefore, one must always keep an open mind when encountering cases with new onset focal neurology.

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1388

WFN15-0205

Stroke

Bone mineral density in patients with stroke

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Aim: The aim of this research is to define the bone mineral density in patients, with stroke.

Methods: We examined 26 women with stroke and 26 healthy women of appropriate age; 27 men with stroke and 27 healthy men of appropriate age.

Results: BMD of women after stroke was significantly lower compared with BMD of women of control group on the level of total body (Z-score = -0.02 ± 0.21 vs. 0.67 ± 0.21 , $F = 5.92$, $p = 0.018$) and at the distal forearm (Z-score = -0.65 ± 0.24 vs. 0.45 ± 0.25 , $F = 9.7$, $p = 0.003$). In men with moderate and severe it was obtained significant differences in BMD at total body (Z-score = -0.35 ± 0.25 vs. 0.59 ± 0.23 , $F = 7.4$, $p = 0.09$), lumbar spine (Z-score = -0.48 ± 0.42 vs. 0.68 ± 0.26 , $F = 6.0$, $p = 0.02$), total hip (Z-score = -0.16 ± 0.27 vs. 0.51 ± 0.15 , $F = 5.4$, $p = 0.03$), distal forearm (Z-score = -0.03 ± 0.33 vs. 0.99 ± 0.30 , $F = 4.7$, $p = 0.04$).

Conclusion: BMD in patients with stroke was significantly lower than in healthy people of the same age. In women the difference was significant at the level of the total body and distal forearm. In men, the difference was significant only in the group of the patients with moderate and severe paresis.

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1389

WFN15-0327

Stroke

Leucocyte count reduction as a predictor for better clinical outcome in hemorrhagic stroke patients during hospitalization in Sanglah Hospital Denpasar

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Abstract

Background: The prognosis of hemorrhagic stroke patients is associated with many factors, leucocyte count is one of them. Many studies indicated that elevated leucocyte count is a predictor for bad clinical outcome and death in patients with hemorrhagic stroke, however, there is remain unclear the role of leucocyte reduction in patients with hemorrhagic stroke.

Objective: to know whether leucocyte reduction after leucocytosis could be a predictor for better clinical outcome of patients with hemorrhagic stroke.

Material and methods: This is a prospective cohort study. Subjects were hemorrhagic stroke patients who were arrival time ≤ 24 hours onset with leucocytosis admitted in Sanglah hospital Denpasar. Group with leucocyte count reduction were compared with group leucocyte count elevation or without changing. Clinical outcome were measured with NIHSS score changing at day 7.

Results: A total of 44 subjects were recruited, 19 of them had better NIHSS score. Leucocyte count reduction was significantly associated with better clinical outcome (RR = 5,33; CI 95%: 1,81-15,74; $p < 0,01$). Leucocyte count reduction was the only independent variable associated with the better NIHSS score.

Conclusion: In Hemorrhagic stroke patients with leucocytosis, leucocyte count reduction could be a predictor for better clinical outcome during hospitalization measured with NIHSS.

Keywords: hemorrhagic stroke, leucocyte count, NIHSS, clinical outcome

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1392

WFN15-0040

Stroke

Treatment of ischemic stroke

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Materials and methods: We investigated 40 patients with ischemic stroke who were on hospitalization in the hospital.

Units of study: We studied the efficacy of the drug Creatine phosphate in complex treatment of 20 patients.

Methods: in acute ischemic stroke 2.4 g introduced intravenously Creatine phosphate bolus by infusion followed by drip 8-16 g per 200 ml of 5% glucose solution for 2 hours. On the second day of 2-4 g appoint intravenous drip 2 times a day, the third day - 2 g intravenously 2 times per day. for 10-14 days.

Results and discussion: 1 group of patients consisted of 12 men and 18 women aged 30 to 60 years, group 2 (control) - 20 patients of which 10 men and 10 women of similar age, with diagnoses: Ischemic stroke Both groups of patients received the standard treatment. When assessing the patient's condition and was used VAS scale and SAN. The first and in the second group of patients from the indicators were 3-8 points (low) to 14-17 points (middle and high). In the second group received only the standard treatment in most patients, the level of well-being has made from 5 to 9 points (low and medium).

Conclusions: In such a way the use of creatine phosphate in the complex treatment renders significantly better medical effect compared with patients who received standard therapy. If to take absolute figures and percentages, these figures are significantly expressed in the first group of patients.

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1394

WFN15-1498

Stroke

Acute quadriplegia: GBS or bilateral medullary infarct – a neurologist's dilemma

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Case Report: Acute Quadriplegia: GBS or Bilateral Medullary Infarct – A Neurologist's Dilemma

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Background: Bilateral medial medullary stroke is a very rare type of stroke, with catastrophic consequences. Early diagnosis is crucial.

Patient and methods: Here, we report two cases presenting with progressive generalized weakness of all 4 limbs and initially diagnosed a case of AIDP initially. Later on electro diagnostic and imaging studies confirm a diagnosis of bilateral medial medullary stroke. Brain magnetic resonance imaging (MRI) that was done showed characteristic “heart appearance” shape at diffusion weighted (DWI), and confirmed bilateral medial medullary stroke. Other possibilities were excluded by lumbar puncture and MRI of cervical spine with screening of whole spine. Retrospectively, a vague-defined hyper intense linear DWI signal at midline was noted in the first brain MRI.

Results: Symmetric and midline pattern of this abnormal signal and similarity to an artifact, some radiologists or neurologists may miss this type of stroke. Radiologists and neurologists must co relate clinical and MRI findings of this rare type of stroke, where early treatment could make a difference in patient outcome and therapy. The abnormal DWI signal in early stages of this type of stroke may not be a typical “heart appearance” shape, and other variants such as small dot or linear DWI signal at midline must be recognized as early signs of stroke.

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1396

WFN15-0610

Stroke

Clinical characteristics of stroke patients with essential thrombocytosis according to Jak2 mutation

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Backgrounds and purpose: Essential thrombocytosis is a rare disorder and usually presents with bleeding, headache, dizziness and splenomegaly. JAK2 mutation is one of the common causes of essential thrombocytosis. However, the clinical features of stroke patients with essential thrombocytosis, especially related to JAK2 mutation, remains unclear.

Methods: We selected the patients with essential thrombocytosis from our stroke registry from 2005 to 2014 and analyzed the demographic and laboratory findings according to JAK2 mutation.

Results: Among 7857 patients in stroke registry, only 40 (0.5%) patients had the essential thrombocytosis (mean age 66.8 ± 11.2 , male 18). Mean platelet count was $648 \pm 267 \times 10^3/\mu\text{L}$ and 18 (45%) had the JAK2 mutation. Twenty one patients (52.5%) had the cryptogenic stroke etiology and cardioembolism and transient ischemic attack were also frequently observed (17.5% and 15%, respectively). Three (7.5%) patients died within 3 months of stroke onset. There was no difference in the demographic profile and the frequency of hypertension, diabetes mellitus, and dyslipidemia between the patients with JAK2 mutation and those without. The platelet counts were not different either between two groups. The patients without JAK2 mutation had more frequent accompanying cancer than those with JAK2 mutation (41% vs. 11%, $P = 0.04$).

Conclusion: Our results suggest that the essential thrombocytosis is a rare condition in stroke population and is more commonly detected in the cryptogenic stroke. If a stroke patient with essential thrombocytosis had no JAK2 mutation, the possibility of hidden malignancy might be considered.

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1398

WFN15-1258

Stroke

Relationship between dysphagia, NIHSS and predictors of pneumonia after ischemic stroke

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Background: The present study aims to evaluate the relation between the NIHSS (National Institutes of Health Stroke Scale) and the presence of laryngeal penetration and laryngotracheal aspiration in ischemic stroke patients; and to verify what factors are predictors of pneumonia occurrence in the evaluated patients.

Methods: This is an observational study with ischemic stroke in acute or sub-acute phase. Neurological examination included anamnesis, BAMFORD classification and application of the NIHSS. The speech therapy evaluation was carried out after the clinical stabilization of the patient. All individuals with dysphagia were evaluated through videofluoroscopy. The parameters observed in the objective exam were the presence of laryngeal penetration and laryngotracheal aspiration. The data on pneumonia were obtained by local protocol based on international guidelines. The relation between the laryngeal penetration and laryngotracheal aspiration with NIHSS was assessed by Mann-Whitney and predictors for pneumonia occurrence were analyzed by multiple logistic regression for semi-automatic Backward selection. Significance was set at p less than 0.05.

Results: The relation between laryngeal penetration and laryngotracheal with NIHSS were not statistically significant. The predictors for pneumonia occurrence in ischemic stroke patients with clinical diagnosis of dysphagia were age ($p = 0.002$; OR: 1.12) and NIHSS ($p = 0.04$; OR: 1.17), while laryngeal penetration of liquid ($p = 0.065$; OR: 3.70) presented a statistical tendency in this sample. **Conclusion:** there is no relation between the NIHSS and laryngeal penetration or laryngotracheal aspiration, and that the principal predictors of pneumonia in patients with dysphagia after ischemic stroke were advanced age, neurological severity and penetration of liquid during videofluoroscopic evaluation.

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1399

WFN15-1012

Stroke

Varicella-Zoster related vasculopathy as a frequently overlooked cause of stroke

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Background and objectives: Varicella-Zoster Virus (VZV) is a neurotropic human herpes-virus. Primary VZV infection causes varicella. Later in life, VZV may reactivate, causing zoster, which may manifest with vasculopathy, including stroke and TIA.

Case reports: A 42-year-old man presented neurological deficits three weeks after zoster in right V2-V3 trigeminal branches and C2-dermatome. MRI findings: bilateral pontine stroke and right

trigeminal ganglia enhancement; normal angiogram. CSF was positive for IgG antibody. IV acyclovir was administered, and clinical improvement was substantial. A healthy 18 months old child developed a transitory braquicrural hemiparesis after chickenpox. MRI showed ischemia in left putamen, coroa radiada and left MCA-M2 branch thickening. CSF findings were normal. Follow-up MRI showed resolution of vasculopathy. No antiviral treatment was administered. Suitable approval for case report was obtained.

Discussion: VZV vasculopathy should be suspected in patients with new onset neurological symptoms after zoster. However, it can occur from weeks to months after zoster, and, in some cases, rash is absent. Imaging findings includes both white and gray matter lesions, predominantly in the gray-white matter junction. CSF shows mild mononuclear pleocytosis and elevated erythrocytes. Protein levels are generally elevated, with normal glucose. CSF anti-VZV IgG is more sensitive than VZV DNA test. Treatment is based on IV acyclovir. Steroids therapy benefit has not been established yet.

Conclusion: VZV vasculopathy is a potentially treatable vasculitis, although frequently underdiagnosed and with diverse clinical features. Facing VZV high prevalence, it may have an important role in both child and adult stroke.

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1400

WFN15-1267

Stroke

Pure midbrain infarction: case reports

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Isolated midbrain infarcts are rare because the arterial blood supply to mesencephalon is complex as compared with medulla oblongata and pons, with frequent overlaps between arterial territories of another infratentorial structures. We present three cases of patients with pure midbrain infarction, whose main manifestations was dominated by hemiparesis, followed by limb ataxia and diplopia. The paramedian territory, supplied by the basilar artery was the most affected. Each patient had different risk factors to attribute the etiology of infarction: small vessel disease, large atherotrombotic disease and connective tissue disease, respectively. All of them were treated only with antiplatelet therapy and rehab, with good clinical outcome (modified Rankin scale < 2).

(Disclosure: we have obtained the approval of our institution to present this reports).

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1402

WFN15-0171

Stroke

Posterior communicating artery aneurysm complicated by postembolization anterior choroidal artery territory syndrome

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Background: The anterior choroidal artery (AChA) is the main branch of the supraclinoid segment of the internal carotid artery. On its course it supplies important sensory and motor structures such as the uncus, lateral portion of the geniculate body, posterior limb of the internal capsule, optic radiation and the choroid plexus of the

lateral ventricle. There is little literature exclusively on AChA stroke, but its prevalence ranges from 2.5% to 11%.

Objectives: Present a case of occlusion of the AChA as a result of embolization of a Posterior communicating artery (PCoA) aneurysm.

Material & methods: A 56-year-old woman was admitted to our department complaining of headache since 24 hours followed by an episode of loss of consciousness. Brain CT scan revealed subarachnoid hemorrhage and DSA showed an aneurysm in the origin of the PCoA. The patient was referred to interventional radiologists for embolization.

Results: Immediately after embolization she developed contralateral hemiplegia, hemianesthesia, and homonymous hemianopsia. This triad of symptoms is commonly presented in the AChA syndrome. Post-embolization brain CT scan revealed an hypodense lesion in the AChA territory corresponded to the posterior limb of the internal capsule.

Conclusion: AChA is a small vessel which can be adherent to the fundus of the PCoA aneurysms. During clipping, it is of major importance to free adhesions of AChA from the aneurysm. Unfortunately, during coiling this is not possible and AChA can easily be obstructed. On the other hand, if there is an anatomic variation in emerging of AChA from PCoA, it could be occluded during aneurysm coiling procedure.

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1403

WFN15-0174

Stroke

Embolic stroke of unknown source (ESUS) as a subset of cryptogenic stroke: experience from a stroke centre in Eastern India

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Background: Cryptogenic stroke comprises about 25% of all ischemic strokes. The extent of diagnostic assessment for defining cryptogenic stroke is not specified. There is persuasive evidence that most cryptogenic strokes are thromboembolic. Embolic stroke of unknown source (ESUS) constructs a subset of cryptogenic stroke. Younger patients are more likely to have cryptogenic stroke (up to 50%) is western studies but similar data from Asian population is lacking.

Objective: The purpose of this study is to look at the profile of Cryptogenic stroke patient who are presumably embolic in origin based on their imaging features, their age distribution and other variables.

Materials and methods: All Consecutive stroke patients underwent CT/MRI Brain, Neck vessel Doppler & Echocardiography. Other investigation like MR/CT Angiography, 24 h-Holter and atypical stroke screening were done as and when required. The patients with non-lacunar infarct, non-major risk cardioembolic source and without proximal arterial stenosis were categorised as ESUS.

Results: Out of 620 patients, 378(60.96%) had ischemic stroke of which 114(30.15%) cases were categorized as having cryptogenic stroke according to TOAST classification. Among cryptogenic stroke 86(75.43%) cases fulfilled the proposed criteria of ESUS. Among 86 patients, 44(51.16%) patients were below 65 yrs.

Conclusion: Cryptogenic stroke comprised 30.15% of all ischaemic strokes. Among them 86 (75.43%) cases were categorised as ESUS. Majority (51.16%) were of younger age. As cryptogenic stroke population lack a proven and effective antithrombotic prophylaxis, we need randomised trials testing oral anticoagulants in view considering a large number in this subset missing optimum treatment.

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1404
WFN15-1274

Stroke**Presenting symptoms associated with good functional outcome at one year in patients with basilar artery occlusion**

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Background: Basilar artery occlusion (BAO) is a rare cause of stroke with a protean manifestation. The presenting symptoms of BAO associated with a good functional outcome at one year are largely unknown.

Objective: Describe the presentation of patients with BAO in our cohort and identify symptoms associated with a good functional outcome at one year.

Methods: We performed a retrospective chart review spanning 29 years (1976-2012) of all patients 18 years of age or older diagnosed with acute basilar artery occlusion.

Results: 86 patients were diagnosed with basilar artery occlusion within the study period. 56 patients (65.1%) presented with a motor deficit, of these 26 patients (30.2%) were hemiparetic, 19 patients (22%) had quadriplegia, 11 patients (12.7%) had only facial weakness. Dysarthria (48, 55.8%), altered consciousness (40, 46.5%), visual symptoms (34, 39.5%) and vertigo (29, 33.7%) were also common presenting symptoms.

21 patients had a good outcome at one year defined as a modified Rankin Scale score of 0-2. The most common symptoms in patients with a good outcome were dysarthria (n = 15), motor deficit (n = 12), visual symptoms (n = 10) and vertigo (n = 9). Five patients with altered consciousness (none with a GCS < 8) had a good outcome at one year.

Conclusions: Dysarthria was the most common presenting associated with acute a good functional outcome at one year. No patients with altered consciousness and a GCS < 8 at presentation had a good outcome at 1 year.

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1405
WFN15-0966

Stroke**Improving thrombolysis treatment by implementing the 25 minute door-to-CT protocol of the Israeli ministry of health**

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Thrombolysis in acute stroke represents a priority for the Israeli Ministry of health during the last period and implementing the 25 minute door-to-CT standard of care for acute stroke patients had a positive impact on all the parameters linked to the treatment process. The goal was performing brain CT under 25 minutes (secondary endpoint 40 minutes) in at least 6% of the cases presenting to the emergency room with clinical suspicion of acute stroke. We present the implementation of this protocol in the "Hillel Yaffe" Medical Center in Hadera, Israel, during the years 2013 and 2014 and its positive influence on several elements related to the thrombolysis treatment, permitting the reduction of door-to-needle time and a better prognosis for the patients. A quarterly analysis of the data was done with further splitting of the elements implied, consistently reducing the time for patient's transfers, laboratory results, and improving stroke teamwork in the ER. The goal of 6% was reached during every quarter, with a global 12% score for 2014. Direct transfer of medical data from ambulance service to stroke team with transfers of patients in later phases of the project directly to imaging department, further reduced the door-to-CT time.

We conclude that implementing the 25 minute door-to-CT protocol and its continuous quarterly analysis and feedback to the Israeli Ministry of Health had a clear positive influence on the door-to-needle time in patients given thrombolysis, thus improving the likelihood for a future better prognosis.

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1406
WFN15-0968

Stroke**A two year quarterly analysis of registered ischemic stroke cases and its impact in improving thrombolysis parameters**

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Reducing door-to-needle in IV thrombolysis and thus improving patient's prognosis represents a mainstay of the neurology department and of the Department of Medical Administration in the "Hillel Yaffe" Medical Centre, Hadera, Israel. A comprehensive program connected to the Israeli Ministry of Health regarding quarterly retrospective analysis of several parameters linked to registered ischemic strokes for a period of two years permitted in-depth examination of the critical points involved in the in-hospital treatment of stroke patients. We critically reviewed data regarding the approach to stroke-suspected patients in the Emergency Room (ER), the door-to-CT time, their relationship to the admission mode in ER (independent versus by ambulance). Furthermore, we reviewed all cases as by their potential to be treated with thrombolysis and checked the accuracy and completeness of the medical records as regarding inclusion/exclusion criteria for thrombolysis. The obtained data was debated on quarterly basis with the stroke team, permitting through several steps a gradual improvement in some parameters including the door-to-needle time for thrombolysis, as well as a 100% accuracy in correctly choosing thrombolysis-prone patients by the ER team. A better stroke nurse triage and improving the electronic medical record by adding specific mandatory data for each stroke-suspected patient in the ER permitted reaching this level of accuracy.

We conclude that an active retrospective quarterly analysis of registered cases of ischemic stroke helps in continuously improving the approach and in-hospital treatment flow-chart in acute stroke patients.

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1408
WFN15-0339

Stroke**Cardioembolic ischemic stroke in young patients: importance of admission serum cardiac markers**

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Background: Cause of ischemic stroke (IS) remains often unclear in young patients. Reliable exclusion of relevant cardiac abnormalities (as

the source of emboli) may require extensive and time-consuming diagnostic setting.

Objective: To evaluate whether the admission elevation of serum cardiac markers (CM) in young acute IS patients may be associated with the presence of relevant cardiac source of emboli.

Methods: The study set consisted of acute IS patients < 50 years enrolled in the prospective HISTORY (Heart and Ischemic STroke Relationship study) study. In all patients, brain ischemia was confirmed on CT/MRI. Admission ECG, serum CM (N-terminal pro-brain natriuretic peptide and high sensitive Troponin T), transoesophageal echocardiography (TEE), 24-hour and 3-week ECG-Holter were performed in all patients.

Results: Of 831 patients enrolled in the HISTORY study, 118 (62 males, mean age 40 ± 8.4 years) were < 50 years. In total, 22 (19%) patients had elevated serum CM at admission. Relevant cardiac abnormalities were detected in 13 (59%) patients with elevation of serum CM and in 2 (2%) with normal level of serum CM ($p < 0.0001$). Atrial fibrillation including paroxysmal was detected in 10 (67%) patients, other three patients had ischemic coronary disease, one patient had severe valve defect and one patient had large acute thrombosis of ascending aorta.

Conclusion: Young acute IS patients with elevated serum CM had more frequently relevant cardiac abnormalities with embolic potential. Study was supported by the IGA MH CR grants NT11046-6/2010 and NT14288-3/2013 and by RVO FNOL 00098892.

Clinical Trial Registration: <http://www.clinicaltrials.gov>. Unique identifier: NCT01541163.

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1409

WFN15-0489

Stroke

Cardioembolic etiology of acute ischemic stroke in patients indicated to revascularization

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Background: Incidence of cardioembolic stroke (CS) is still considered being underestimated, because reliable detection requires extensive and time-consuming diagnostic setting.

Objective: Aim was to assess cardioembolic etiology of acute ischemic stroke (IS) in patients admitted for revascularization.

Methods: In this prospective study (Clinicaltrials.gov No. NCT01541163), 535 (314 males, mean age 68.4 ± 12.3 years) consecutive acute IS patients were enrolled within first 6 h after stroke onset. CT/MRI, laboratory tests, repeated ECG, 24 h ECG Holter monitoring, transthoracic and transoesophageal echocardiography, and ultrasound of cervical and intracranial arteries were performed in all patients. Etiology of IS was assessed using the TOAST and ASCOD classifications. Demographic and baseline clinical parameters were compared between cardioembolic (ASCOD C1) and non-cardioembolic (ASCOD C0) strokes.

Results: According to the TOAST; 228 (42.6%) patients were identified as CS. According to the ASCOD; 243 (45.4%) patients were classified as C1 (potentially causal). Atrial fibrillation (AF) was detected in 208 (85.6%); in 119 (57.2%) patients was newly diagnosed. Other cause of cardioembolism was present in 35 (14.4%) patients. Patients with CS were significantly older (72.4 vs. 56.1 years, $P < 0.001$) and admitted earlier (102 vs. 126 min, $P = 0.005$) than patients with other etiology of IS. No differences was found between groups in performed revascularization (42.2% vs. 41.0% $P = 0.43$).

Conclusions: Cardiac source of emboli was detected in 45% acute IS patients indicated to revascularization. AF was the most frequent cause; in most patients newly diagnosed. Supported by the IGA MH CR grants NT/11046-6/2010 and NT/14288-3/2013, and by RVO FNOL 00098892.

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1412

WFN15-0984

Stroke

Moya-Moya syndrome associated to falciform trait

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Background: The Moyamoya syndrome (MMS) is a cerebrovascular condition that predisposes affected patients to stroke in association with progressive stenosis of the intracranial internal carotid arteries and their proximal branches. This results in collateral vascularization at the base of the brain, which on cerebral angiography appears as a 'puff of smoke', which is termed Moya Moya in Japanese. MMS is rare and has been characterized mainly in Asian countries and represents a rare cause of stroke, in both the pediatric and adult population. May be idiopathic or may occur secondary to many disorders, including sickle cell anemia.

Objectives: Report a case of MMS secondary of sickle cell trait.

Patients and methods: C.H.S.D., male, 35, black, in Multiple Sclerosis (MS) monitoring for 8 years, neurological symptoms of dysarthria, dysmetria, imbalance, incoordination and gait ataxia. Brother and nephew with sickle cell anemia, cousin with MS. During follow-up, there was disagreement between the previous diagnosis of MS and the clinical presentation. Thus, it was considered the possibility of cerebrovascular disease associated with sickle cell trait, discarded other secondary causes. Angio-MR with MMS standard.

Results: We reported a case of MMS associated to sickle cell trait.

Conclusion: As described in the literature, there is usually presence of MMS in patients with sickle cell anemia, but there are reports of rare cases of association with sickle cell trait. We caution the importance of think this hypothesis in patients with sickle cell trait, avoiding delay in diagnosis and treatment.

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1413

WFN15-0053

Stroke

Intracerebral hemorrhage complication after IV thrombolytic treatment

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Background: Intravenous thrombolytic treatment with recombinant tissue plasminogen activator (rt-PA) is efficacious methods for ischemic stroke patients in first 4.5 hours. After iv rt-PA thrombolytic treatment, symptomatic intracerebral hemorrhage (ICH) rate is 6%, fatal ICH rate is 3%.

Objective: We planned to find out our ICH complication rate after iv thrombolytic treatment and to determine the factors affecting this complication.

Material and methods: Fifty-one ischemic stroke patients taking iv thrombolytic treatment in our Neurology Intensive Care Unit between 2009–2014 were retrospectively evaluated. All patients were treated with rt-PA 0.9 mg/kg first 4.5 hours. Twenty four hours routine neurological and physical observation were done. Control cranial CT was performed. Hemorrhage complication was noted.

Results: Hemorrhage complication was noted 12/51 patients (23.5 %) (8 male, 4 female, 55–79 years, mean age 62.5 ± 8.74). Exitus number was 4/12 (33.3 %), all exitus patients had atrial fibrillation and/or cardiac insufficiency. Antiaggregant use was 8/12 (66.7%). Although five patients (41.7%) having ICH in CT showed clinical improvement in first 24 hours clinically, other 3 patients having similar ICH showed no clinical change in first 24 hours (25%) but after 24 hours they showed neurologically clinical improvement.

Conclusion: IV thrombolytic treatment is a reliable, usable method in acute ischemic stroke in first 4.5 hours. Fatal or symptomatic ICH sometimes can be inevitable. ICH is a very important prognostic factor in iv thrombolytic treatment. If we know which patient is more risky for complications we may try to reduce the risk.

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1414 WFN15-0704 Stroke

Peroxynitrite plays critical roles in thrombolysis-induced hemorrhagic transformation in post-stroke treatment

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Background: Tissue-plasminogen activator (t-PA) remains the only FDA-approved therapy for acute ischemic stroke with a restrictive window of 4.5 hours. Delayed t-PA treatment increases the risk of hemorrhagic transformation (HT) but its mechanisms are unknown. During t-PA infusion, recanalization causes cerebral ischemia-reperfusion injury, producing large amounts of peroxynitrite. Peroxynitrite could activate MMPs and disrupt blood-brain-barrier in cerebral ischemic injury. Whether peroxynitrite plays a role in t-PA-mediated hemorrhagic transformation remains unknown.

Objectives: We aim to test the hypothesis that peroxynitrite could play crucial roles in HT in ischemic brain with delayed thrombolytic treatment.

Materials and methods: Male Sprague-Dawley (SD) rats were subjected to middle cerebral artery occlusion (MCAO) for 2 and 5 hours following 22 and 19 hours of reperfusion respectively with or without t-PA (10 mg/kg) treatment. FeTMPyP (3 mg/kg), a representative peroxynitrite decomposition catalyst (PDC), was co-treated with t-PA. We detected HT, neurological severity score (mNSS), 3-nitrotyrosine (3-NT) and MMP-9/-2 levels.

Results: T-PA treatment at 2 hours improved neurological deficit scores and reduced infarction whereas t-PA treatment at 5 hours induced HT, worsened neurological deficit, up-regulated 3-NT expression and MMP-9/-2 expression. Co-treatment FeTMPyP abolished t-PA-induced HT, promoted mNSS and inhibited 3-NT expression and MMP-9/-2 expression and activity.

Conclusion: Peroxynitrite might be a critical player in t-PA-mediated hemorrhagic transformation. Targeting peroxynitrite could be a crucial therapeutic strategy to prevent thrombolysis-induced hemorrhagic transformation in post-stroke treatment.

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1415 WFN15-1428 Stroke

On the assessment of the compliance factor in effectiveness evaluation of medication in patients with occlusive atherosclerosis

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Background: Non-observance by the patients of recommendations of the prescribed therapy is an important problem. Approximately the same amount of patients who take the prescribed medicines on a regular basis do not achieve the targeted levels of indices of blood lipids.

Objective: The assessment of the compliance factor in effectiveness evaluation of medication in patients with occlusive atherosclerosis of internal carotid artery (ICA).

Materials and methods: The research included 98 patients with occlusive atherosclerosis (ICA) and high risk according to the SCORE scale. All the patients were randomized into 2 groups: the first - 40 patients, 2-nd - 58 patients taking atorvastatin not on a regular basis or in a less dose. The observation period was 12 months. They assessed the level of cholesterol of low-density lipoprotein (CLDL) at the beginning and the end of the research.

Results: In the 1st group they found out the significant decrease of CLDL in comparison with original data among men and women ($p < 0,001$). The targeted level of CLDL was achieved in 50% of patients. In the 2nd group of the patients, they pointed out a significant decrease of CLDL in comparison with the original data. Among the men the decrease of the level of CLDL appeared to be not significant. The targeted level of CLDL was achieved in 16% of patients (78% - women)

Conclusion: 40% of the patients take recommended statin therapy on a regular basis during a year. Only 50% of dyslipidemia compliant patients achieved the targeted level of CLDL.

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1416 WFN15-0921 Stroke

Antismoking interventions in stroke patients – Polish perspective

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Background and objective: Although smoking is considered one of the most important risk factors for ischemic stroke, there is still lack of consensus on optimal anti-smoking interventions in stroke patients. We present our experience regarding smoking interventions in patients hospitalized in stroke units.

Patients and methods: Patients with first ever ischemic stroke consecutively admitted to the Institute of Psychiatry and Neurology (N = 198), were randomly assigned to one of three groups with antismoking interventions based on the "5A's" method (Group 1 – 20 min. counseling by a physician, no early follow up, Group 2 – as above plus one telephone intervention 7 days post stroke, Group 3 – as above plus four telephone interventions within 6 weeks after discharge). There were two follow-ups, 3 and 12 months after stroke.

Results: The important predictor of smoking at follow-up was severity of nicotine dependence, smoking household member and readiness to give up smoking declared during hospitalization. There was a trend towards a difference in rates of smoking cessation between the groups with and the group without early telephone interventions (40%–42% vs. 35% at the 3-month follow-up). There was no effect of intensity of telephone interventions at follow-up.

Conclusion: Our study may indicate that: i) initial readiness to change and some social context may influence smoking cessation rates, ii) telephone interventions at follow-up may offer a small improvement in cessation rates.

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1417

WFN15-0132

Stroke

Role of computed tomography perfusion imaging in the diagnosis of migraine

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Background: Migraine with aura can mimic stroke-like symptoms. Prolonged migraine with aura poses a challenge in distinguishing it from TIA or ischemic stroke. Computed Tomography (CT) perfusion is an emerging imaging modality that can help in defining migraine with aura.

Case: A 34 year old female marathon runner with history of menstrual migraines presented with one hour history of dysarthria, left hemiparesis and left facial droop. On presentation her symptoms improved to a NIH scale of 1. Initial non contrast CT head showed no infarct or hemorrhage with subsequent CT angiography of the head and neck that was unremarkable. However CT perfusion showed global cerebral hypoperfusion. Given age of presentation and global hypoperfusion, cerebral arteriogram was performed showing patent vasculature with no luminal irregularities. MRI head showed acute right basal ganglia infarct. Further workup showed a small PFO on transthoracic echo with mild left to right shunt seen on transesophageal echo. Hypercoagulation workup was negative. Four days later she was discharged on Plavix with no focal neurological deficits. Given these findings, the etiology of her acute neurological deficit was migraine with aura, where CT perfusion imaging was pivotal in her diagnosis. At 3 months follow up, her neurological exam was unremarkable.

Conclusion: In young patients with stroke-like symptoms, CT perfusion is an emerging imaging modality that can add valuable information in differentiating between migraine with aura and ischemic stroke.

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1418

WFN15-0242

Stroke

Sonolysis in prevention of brain infarction during cardiac surgery (Sonorescue): a randomized, controlled trial

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Background: Previous studies detected silent brain infarctions in as many as two-thirds of patients after coronary artery bypass graft (CABG) or valve surgery. Sonolysis employs ultrasound to facilitate disruption of thrombi.

Objective: To determine if intraoperative sonolysis alters the risk of new brain infarction in insolated brain artery territory during CABG or valve surgery.

Patients and methods: Functionally independent patients indicated for CABG or valve surgery were assigned to the sonolysis or control group. Sonolysis was performed as continuous transcranial Doppler monitoring of right middle cerebral artery (MCA) during cardiac surgery using 2-MHz diagnostic probe. Neurological examination, cognitive functions tests, and brain magnetic resonance imaging (MRI) were conducted before intervention, at 24–72 h and 30 days post-surgery. The primary endpoints were the incidence and volume of new brain infarctions and incidence of new brain infarctions ≥ 0.5 mL in the right MCA territory on control MRI in sonolysis and control groups.

Results: Of 214 screened patients, 60 (37 males; mean age, 65.3 years) were allocated to sonolysis group and 60 (32; 66.8 years) to control group. Significantly reduced incidence of new brain infarctions ≥ 0.5 mL (13.3% vs. 26.7%, $P = 0.109$) and infarction volume ($P = 0.026$) were detected in the sonolysis group. Internal carotid artery stenosis (OR = 5.685) and smoking (OR = 4.698) were identified as independent predictors of brain infarction. No significant group differences were found in stroke incidence and post-intervention cognitive tests scores ($P > 0.05$).

Conclusion: Sonolysis during CABG or valve surgery reduces the risk of larger new brain infarctions.

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1419

WFN15-0428

Stroke

Blood-brain barrier disruption on MRI after mechanical thrombectomy

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Background & Objective: Mechanical thrombectomy has shown the usefulness for recanalization in acute cerebral arterial occlusion. Blood-brain barrier (BBB) disruption is a common phenomenon after mechanical thrombectomy in acute ischemic stroke. The aim of this study was to evaluate the incidence, related factors and clinical prognosis of BBB disruption after mechanical thrombectomy.

Methods: Data are from the Keimyung Stroke Registry and consecutive patients with M1 segment middle cerebral artery (MCA) or terminal intracranial internal carotid artery (ICA) occlusion on cerebral angiography from May 2009 to July 2013 were included. All patient underwent mechanical thrombectomy including balloon angioplasty, stent retriever, and Penumbra device. BBB disruption was assessed in fluid attenuated inversion recovery (FLAIR) performed within 24 hours of post procedure in patients treated for acute cerebral arterial occlusion. The local institutional review board approved the study.

Results: A total of 173 patients (89 male, median age 67 years, median baseline NIHSS 12) were included in the study. Forty-eight (27.7%) patients had initial intravenous thrombolysis and subsequent mechanical thrombolysis. Twenty-two (12.7%) patients had BBB disruption. Seventy (40.4%) patients had good outcome. BBB

disruption was associated with young age, non-smoker, and diabetes mellitus, and recanalized state of thrombolysis in cerebra infarction (TICI) 2b-3 ($P < 0.05$). However, BBB disruption was not association with poor prognosis (58.3% vs 68.2%).

Conclusion: BBB disruption is not rare after mechanical thrombectomy, especially in patients with fully recanalization. BBB disruption shown on FLAIR may be benign.

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1420

WFN15-1543

Stroke

Thrombolysis with alteplase in acute ischaemic stroke at Dr. Fernan Henriquez Hospital of Temuco-Chile

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Background: Stroke is a leading cause of death and disability in Chile. Thrombolysis with alteplase is the reference treatment in acute ischaemic stroke. Since May 2012 thrombolysis is performed at the Hernan Henriquez Hospital.

Objectives: To describe the experience of three years of intravenous alteplase in our center.

Patients and methods: A series of consecutive cases of patients who received thrombolysis, between May 2012 and April 2015 at Dr. Hernan Henriquez Hospital of Temuco-Chile.

Results: 53 patients were treated during the period. 86.8% of thrombolysis was performed under the system of neurology 24/7. The average age of patients was 68 years. 56.6% of patients were male ($n = 30$). Median time of arrival to the emergency department was 84 minutes (IQR 53-118). Median door-to-needle time was 87 minutes (IQR 62-114). Median NIHSS at admission was 12 points (IQR 8-16). Median time between the onset of symptoms to the start of thrombolysis was 174 minutes (IQR 150-210). Regarding the functional outcome measured by the Modified Rankin Scale (mRS) at discharge: 14 patients (26.4%) had a mRS of 0-1; 8 patients (15%) had a mRS of 2; 6 patients (11.3%) had a mRS of 3; 15 (28.3%) had a mRS of 4; 4 (7.6%) had a mRS of 5 and 6 (11.4%) died (mRS = 6).

Conclusions: It is feasible to perform intravenous thrombolysis in public hospitals in all regions in Chile. The implementation of neurology shifts 24/7 in the Emergency Department, has developed the use of intravenous thrombolysis at our hospital.

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1422

WFN15-0551

Stroke

The role of platelet count and mean platelet volume in clopidogrel resistance in ischemic stroke patients

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Background: Clopidogrel resistance (CR) has been associated with increased recurrent stroke, morbidity and mortality rates in ischemic stroke patients.

Objective: To explore whether platelet count and mean platelet volume (MPV) are indicators of platelet activation in ischemic stroke patients with CR.

Methods: Medical records of ischdemic stroke patients on clopidogrel therapy who have been screened for CR were studied retrospectively. Platelet count was performed within routine complete blood count (CBC) at two hours of blood withdrawal. CR was measured with an impedance aggregometer.

Results: Platelet count was significantly higher in patients with CR compared to those without CR ($p = 0.005$; p

Conclusion: A platelet count of 254 or higher has been demonstrated to be associated with a substantially increased risk of developing clopidogrel resistance. Our data suggest that platelet count should be considered while determining the optimal dosage of clopidogrel therapy to prevent recurrent stroke.

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1423

WFN15-0913

Stroke

Cytokine responses in patients with acute ischemic stroke or transient ischemic attack during hospitalization and intensive treadmill training

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Background: Cytokines are produced locally following tissue damage during acute cerebral ischemia with e.g. interleukin (IL) 6 shown to be significantly higher shortly after symptom onset. Some cytokines are also produced by skeletal muscle cells during physical activity. Little is however known about cytokine responses in patients with acute cerebral ischemia during physical activity.

Objective: The purpose of our study was to compare cytokine responses during hospitalization in patients with 1) transient ischemic attack (TIA), 2) patients with acute ischemic stroke and 3) patients with acute ischemic stroke during intensive treadmill training. Additionally, the cytokine responses were compared with physical activity measured with accelerometry.

Methods: 16 TIA patients (group 1) and 15 and 20 acute ischemic stroke patients with motor disability (groups 2 and 3) admitted to our acute stroke unit were included within 72 hours of ictus. All patients wore 5 accelerometers continuously for up to 7 days of hospitalization. Patients from group 3 trained 2×30 minutes daily on a weight bearing treadmill for the first 5 days of admission. Blood samples were taken daily for all patients and up to 20 additional blood samples were taken during 2 training sessions in group 3. Blood samples were analyzed for IL-6, 10, 17A, 17B, 21, 23 and 33 using flow cytometry.

Results and conclusion: All samples have been analyzed and we are currently in the process of preparing our manuscript. All results from the 51 patients will thus be presented at the XXII World Congress of Neurology.

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1424

WFN15-0876

Stroke

Moyamoya disease initially manifesting as vascular parkinsonism

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Moyamoya disease is a cerebrovascular disorder characterized by progressive stenosis of the distal internal carotid artery, which can

attribute to the wide range of clinical presentations. The majority of affected patients present with transient or fixed symptoms of cerebral ischemia such as hemiparesis, dysarthria and aphasia. However, vascular parkinsonism (VP) has been described as extremely rare clinical manifestation. We report a patient presenting with clinical symptom of VP as the initial manifestation of moyamoya disease.

A 55-year-old woman presented with slowly progressive gait disturbance during a period of 2 years. She had no remarkable past history except for hypertension. On neurological examination, bradykinesia in all extremities, but more prominent on the left side, was noted with no resting tremor and rigidity. She showed small-stepped gait with pivotal turning, initiation failure and postural instability. Deep tendon reflexes were asymmetrically brisker on the left. T2-weighted and FLAIR images of the brain demonstrated diffuse hyperintensity involving cortical and subcortical areas of the bilateral frontal lobes. MRA and digital subtraction angiography of the brain revealed steno-occlusion at the terminal ends of the bilateral internal carotid arteries with the development of collateral vascular network.

To our knowledge, this is the first case presenting with clinical symptoms of VP as the initial manifestation of moyamoya disease. Our case allows us to supplement clinical symptoms of VP to the initial manifestation of moyamoya disease, resulted from chronic ischemia to cortical and subcortical areas of the brain.

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1425

WFN15-0881

Stroke

Emergent stent-assisted recanalization for wake-up stroke

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Background & Purpose: Patients who suffer an acute ischemic stroke during sleep and present with symptoms on awakening are ineligible for standard intravenous thrombolysis due to uncertainty in symptom onset times. Some patients may, however, benefit from emergent stent-assisted recanalization. Therefore, this study aimed to evaluate the feasibility and safety of emergent stent-assisted recanalization in wake-up stroke (WUS) patients.

Methods: Ten WUS patients with internal carotid (ICA) or middle cerebral artery (MCA) occlusions were evaluated in this study. Stent-assisted recanalization was measured using the Thrombolysis in Cerebral Infarction (TICI) score. Safety and functional outcome were assessed by the occurrence of symptomatic intracranial hemorrhage (ICH) and the National Institute of Health Stroke Scale (NIHSS) at admission and at 7 days after recanalization. The modified Rankin Scale (mRS) was also checked at 90 days after recanalization.

Results: The mean NIHSS score on admission was 17.8 ± 4.5 . Occlusion sites were proximal ICA in 3, supraclinoid ICA in 1 patient, and M1 of the MCA in 6 patients. Successful recanalization (TICI 2b: 4 patients, TICI 3: 3 patients) was achieved in 70% of patients. At 7 days after recanalization, 2 patients had no change, 1 patient had aggravated symptoms, and 7 patients showed improved NIHSS scores (mean 9.4), and at 90 days a mRS score of ≤ 2 was achieved in 2 patients (20%) with no occurrence of symptomatic ICH in any patients.

Conclusions: This case series demonstrates the feasibility of emergent stent-assisted recanalization for successful recanalization and improvement on NIHSS in WUS patients.

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1426

WFN15-0715

Stroke

Non-hdl-cholesterol in ischemic stroke patients populations

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Background: The Adult Treatment Panel III and International Atherosclerosis Society guidelines established non-high-density lipoprotein cholesterol (non-HDL-C) as a secondary and alternate to LDL-C treatment target in cardiovascular diseases treatment. The association of non-HDL-C with ischemic stroke (IS) is not well established.

Objective: We evaluated non-HDL-C in IS patients and its relation to stroke aetiology and statin pre-treatment.

Patients and methods: We analyzed data from 1 476 patients with IS hospitalized in 10 centres. Stroke risk factors, statin pre-treatment, fasting lipid profile (blood samples were collected within 36 hours of IS onset), modified TOAST classification were evaluated.

Results: We didn't find deflections in mean values of Total-C- $193,9 \pm 49,2$ mg/dl, HDL-C- $50,4 \pm 16,2$ and Triglicerydes- $133,0 \pm 79,0$ mg/dl comparing to general guidelines. Both mean values of LDL-C - $118,5 \pm 42,3$ mg/dl and non-HDL-C - $143,5 \pm 47,1$ mg/dl were higher than recommended values for high risk population. Among all IS patients 619 had optimal non-HDL-C (< 130 mg/dl), 360 elevated non-HDL-C ($130 - 159$ mg/dl) and 476 high non-HDL-C (≥ 160 mg/dl). Elevated and high levels of non-HDL-C were associated with lacunar stroke ($p < 0,01$). There were no gender differences in non-HDL-C levels observed. Non-HDL-C levels negatively correlated with age ($p < 0,001$). Statin pre-treatment was associated with significantly lower mean values of non-HDL-C ($p < 0,001$).

Conclusion: In IS risk evaluation non-HDL-C seems to have the same prognostic value as LDL-C, especially in case of lacunar stroke risk and should be investigated among standard lipid panels in clinical practice of primary and secondary stroke prevention.

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1428

WFN15-0740

Stroke

Lacunar infarct presenting with pure arm weakness

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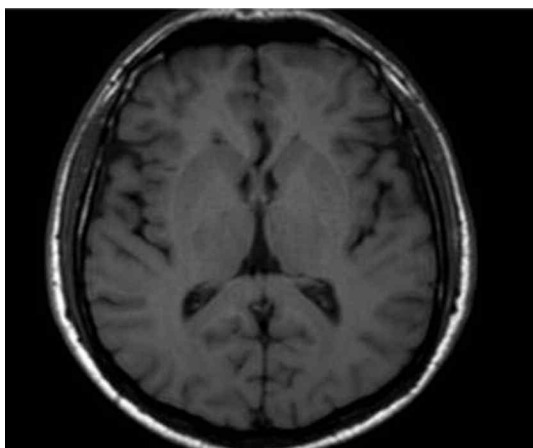
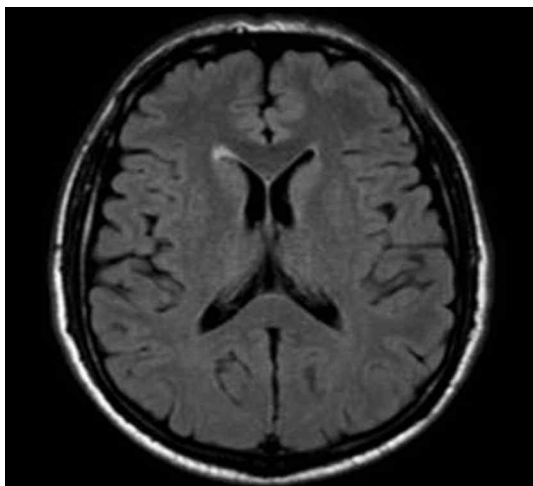
Background: Lacunar infarcts are small deep infarcts that result from occlusion of a penetrating artery. Patients usually present with a classical lacunar syndrome (pure motor hemiparesis, pure sensory syndrome, sensorimotor stroke, ataxic hemiparesis or dysarthria-clumsy hand). Pure motor hemiparesis can be presented with affected face, arm, leg equally.

Objective: Monoparesis is rare in pure motor paresis. We present a pure motor monoparesis of the upper limb caused by lacunar infarct.

Patient and report: A 53 year old male patient presented with weakness of lifting left arm. The weakness started three weeks ago. First he was admitted to department of physical therapy and rehabilitation. There was no cure after the therapy, so he was admitted to our clinic. On the neurological examination there was weakness abduction on the left arm, weakness flexion and extension on left forearm. Deep tendon reflexes were increased on left upper limb.

Results: Brain computer tomography was normal. For this reason diffusion MRI was undergone and acute lacunar infarct near the anterior horn of the right lateral ventricles was detected. The laboratory and cardiac tests were normal. So acetylsalicylic acid was given.

Conclusion: Lacunar infarcts tend to cause restricted neurological signs due to their small sizes. Fisher CM stated that monoparesis does not occur secondary to a lacunar infarct, but some cases have been described despite the lack of clinical details or pathological confirmation. Clinicians should consider lacunar infarcts in patients presenting with monoparesis, so larger infarcts can be prevented.



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1429

WFN15-0907

Stroke

Alien hand syndrome in a patient with corpus callosum ischemia associated with MTHFR mutation

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Background: Alien hand syndrome is characterized by a strange feeling in the upper extremities and involuntary movements. This situation can be accompanied by similar symptoms in the ipsilateral lower extremity. In the etiology of alien hand syndrome, neurosurgery, tumors, aneurysms, and rarely stroke are shown as responsible factors.

Objective: Here we report on a patient with alien hand syndrome associated with corpus callosum ischemia due to methylenetetrahydrofolate reductase (MTHFR) mutation.

Patient and methods: A 41-year-old female was admitted with complaints of foreignness and clumsiness of the right hand. When she held her left hand with her right hand, she stated that she felt like she was holding an object, something like plastic; she felt that her right hand was absent. Her medical history revealed rheumatic fever at age 8 and hypertension for 2 years. She was a smoker for 20 years (20 cigarettes a day). Diffusion weighted magnetic resonance images revealed diffusion restriction compatible with acute ischemia in the corpus callosum corpus and a portion of the cingulate gyrus. Additionally, T2 and Flair images revealed hyperintensities in the same territory. Head and neck CT angiographies were unremarkable in terms of carotid and intracranial arterial dissection. Echocardiography revealed fibrotic degeneration of the aortic and mitral valves. Hematological and biochemical markers were normal, including homocysteine.

Results: Genetic analysis revealed methylenetetrahydrofolate reductase (MTHFR) C677T and A1298C heterozygous mutation. The patient was put on 300 mg/day of acetylsalicylic acid.

Conclusion: Alien hand syndrome is an uncommon clinical condition. Acute ischemia of the corpus callosum is a rare etiological factor for alien hand syndrome. Clinicians should consider acute ischemia of the corpus callosum in patients with alien hand syndrome.

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1430

WFN15-0979

Stroke

Polyarteritis nodosa associated stroke 30 Years after diagnosis

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Background: Polyarteritis nodosa (PAN) is a small and medium-sized muscular artery vasculitis. Polyarteritis nodosa associated stroke (PANAS) is a rare disease.

Objective: In this case report, a PAN diagnosed patient with ischemia in the pons will be presented.

Patient and methods: A 35-year-old male was admitted to our neurology service with complaints of imbalance and weakness on the left side. The patient's neurological examination showed the following: no disturbance of consciousness, left hemiparesis, left extensor plantar response, ataxic walking, and slurred speech. Cranial MRI was compatible with acute pontine ischemic stroke. The patient's history revealed that he had been treated and followed up with a diagnosis of PAN for 30 years.

Results: Hematological examinations for thrombophilia, genetic analysis, transesophageal echocardiography (TEE), and a CT angiography of the head and neck were performed. Hematologic and genetic tests did not confirm cause thrombophilia. Both ICA, ECA, ACA, MCA and PCA, were respectively patent. No cardioembolic focus was obtained. The patient was diagnosed with PANAS.

Conclusion: This case revealed a deep small or pontine-penetrating artery thrombotic microangiopathy rather than the vasculitis seen

in PANAS. Because the patient was younger, an ischemic lesion in the pons and other risk factors could not be found, and the patient was diagnosed with PANAS. This case report is presented because polyarteritis nodosa associated stroke (PANAS) is a rare condition.

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1431

WFN15-1075

Stroke

Ischemic stroke presenting with bilateral 6th cranial nerve palsy, nausea and vomiting

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Background: Ischemic stroke can be presented with a variety of complaints and clinical findings depending on the affected region of the brain.

Objective: In this case report we present an ischemic stroke patient who presented with bilateral 6th cranial nerve palsy and nausea and vomiting.

Patient and method: A 61-year-old male patient admitted to our department complaining of dizziness, double vision, nausea and vomiting. His complaints suddenly developed in the morning. Double vision was increasing on bilateral lateral gaze. Dizziness was not affected by the position of the head. When he closed his eyes, dizziness partially reduced. When he opened his eyes he had severe nausea and vomiting. On neurological examination; bilateral lateral gaze were restricted, it was assessed as bilateral abducens paralysis. Other neurological examination findings were normal (Papillary stasis was not found).

Result: CT scans of the brain were normal. On diffusion MRI examination, in the posterior segment of the Pons acute infarct area characterized by hyperintense outlook with the limitations of diffusion was observed in T2 and FLAIR sequence. Venous angiography was within normal limits.

Conclusion: When the patient's symptoms and neurological examination initially evaluated it was thought as increased intracranial pressure syndrome. However, due to lack of papillary stasis, it was suspected another preliminary diagnosis. There is no case in the literature with ischemia presented with bilateral sixth cranial nerve involvement, dizziness, nausea, vomiting. Thus, we think ischemia should be kept in mind in these patients when papillary examination is normal.

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1432

WFN15-0626

Stroke

Characteristics of patients with non-traumatic, aneurysmal, subarachnoid haemorrhage

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Introduction: Non-traumatic, aneurysmal, subarachnoid hemorrhage usually caused by a ruptured cerebral aneurysm. The aim of our study was to describe the clinical characteristics of patients with non-traumatic, aneurysmal, subarachnoid hemorrhage that were admitted in Evangelismos Hospital, Athens, Greece over a 4 year period.

Methods: We looked into data of all patients admitted with a diagnosis of SH. Demographic and clinical characteristics were recorded.

Results: Between 01/2011 and 12/2014 97 patients with non-traumatic, aneurysmal, subarachnoid hemorrhage (68.0% females, mean age 54.7 ± 11.5) were admitted. Out of them 31 patients died during the first 30 days of hospitalization (30-day mortality rate 32.0%).

Patients who survived did not differ significantly regarding age, sex and vascular risk factors compared to patients who died.

Contrary, patients who died had lower Glasgow Coma Scale (GCS) at admission (mean GCS 7.9 versus 13.6, $p < 0.001$), presented more with intraventricular extension of the hemorrhage (64.5% versus 39.4%, $p = 0.021$) as well as intraparenchymal presence of the hemorrhage (25.8% versus 6.1%, $p = 0.006$). The thickness of the hematoma did not differ between the two groups.

Following angiography, the most common site of aneurysm was found to be the anterior communicating artery (29.9%), followed by middle cerebral artery and internal carotid (23.7% and 13.4% respectively).

Conclusion: Glasgow Coma Scale score, intraventricular extension and intraparenchymal presence of the haemorrhage are significant prognostic factors of 30-day mortality rate in patients with non-traumatic, aneurysmal, subarachnoid haemorrhage.

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1433

WFN15-0401

Stroke

The value of contralateral stenosis as a measure of carotid plaque instability on ultrasound

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Background: It has been demonstrated that symptomatic carotid plaques are hypoechoic and tightly stenosed on ultrasound, whereas asymptomatic ones are hyperechoic and less stenotic.

Objective: The aim of this study was to determine the significance of contralateral stenosis for the development of symptoms in the index retinal or hemispheric side, ipsilaterally to the plaque under investigation, in addition to its echogenicity and stenosis.

Material and methods: Analysis involved imaging by duplex of 407 plaques of more than 50% stenosis (407 patients, 189 symptomatic and 218 asymptomatic plaques) and capturing in a computer. One plaque per patient was selected, that with a recent symptom (symptomatic one) or with a bruit and tight stenosis (asymptomatic one). The plaque Grey Scale Median (GSM) was evaluated to distinguish dark (low GSM) from bright (high GSM) plaques. Stenosis was evaluated both ipsilaterally and contralaterally.

Results: Symptomatic plaques were associated with median GSM of 8 whereas asymptomatic ones with 31 ($p = 0.0001$). The corresponding values for: 1) median ipsilateral stenosis were: 80% for symptomatic plaques and 70% for asymptomatic ones ($p = 0.0001$) and 2) median contralateral stenosis were: 55% for index symptomatic side and 65% for index asymptomatic side ($p = 0.008$).

Conclusion: Our results indicated that GSM and stenosis of plaques, both in the index side, separated symptomatic and asymptomatic ones. As to the contralateral stenosis, our results indicated tight stenosis predisposes to an asymptomatic status in the index side, suggesting that contralateral severe stenosis stimulates the development of cerebral collateral circulation and thus offering protection.

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1434

WFN15-0055

Stroke

The 10,000 fold effect of nitric oxide: use of intracarotid sodium nitroprusside

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Background: rTPA showed level-1 benefit in AIS. Intracarotid-sodium-nitroprusside(ICSNP)studied here for wide-treatment-window and fast-recovery.

a) RETROGRADE-NEUROTRANSMISSION-RNT(acute):

- 1) Normal-impulse: At synaptic-level, glutamate-activates NMDA-receptors, having nitric-oxide-synthetase(NOS)on postsynaptic-neuron, for further propagation by calcium-calmodulin-complex. Nitric-oxide(NO-produced-by-NOS)travels-backward across chemical-synapse(CS), binds NO-receptor/sGC of presynaptic-neuron, regulating anterograde-neurotransmission(ANT). Heme(ligand-binding-site)exhibits >10,000-fold higher affinity for NO than for oxygen(10,000-fold-effect).
- 2) Stroke: Normal synaptic-activity, ANT and RNT are absent. NO-donor(SNP)releases NO from NOS. NO travels backward across CS to bind heme of NO-receptor/sGC, generates ELECTRICAL-IMPULSE, as in normal-ANT.

b) VASOSPASM(acute):

Juxtra-penumbra-perforators show vasospastic activity. NO vasodilates the perforators via the NO-cAMP-pathway.

c) LONG-TERM POTENTIATION(LTP)chronic:

Via NO-cGMP-pathway.

Aims/study design: to treat acute-stroke by RNT/vasodilatation, and chronic-stroke by LTP. Case-control-prospective-study.

Materials and methods: 200-patients (100-control and 100 patients ICSNP group). Mean time for superfusion was 9.5 days post-stroke. Status was monitored by NIHSS, MRI and TCD.

Results: After 90-seconds in ICSNP group, mean change in NIHSS score was decrease of 1.44-points/6.55%; after 2-h, decrease of 1.16-points; after 24-h, increase of 0.66-points/2.25%, compared to control-group increase of 0.7 points, or 3.53%; at 7 days, 8.61-point decrease, 44.58%, compared to the control-group increase of 2.55 points, or 22.37%; at 2 months 6.94-points decrease, 62.80%, compared to the control-group decrease of 2.77 points, or 8.78%.

Conclusions: ICSNP is a swift-acting drug in the treatment of stroke, acting within 90 seconds on 9.5 post-stroke day with a small decrease after 24 hours then to normal in due course.

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1436

WFN15-1269

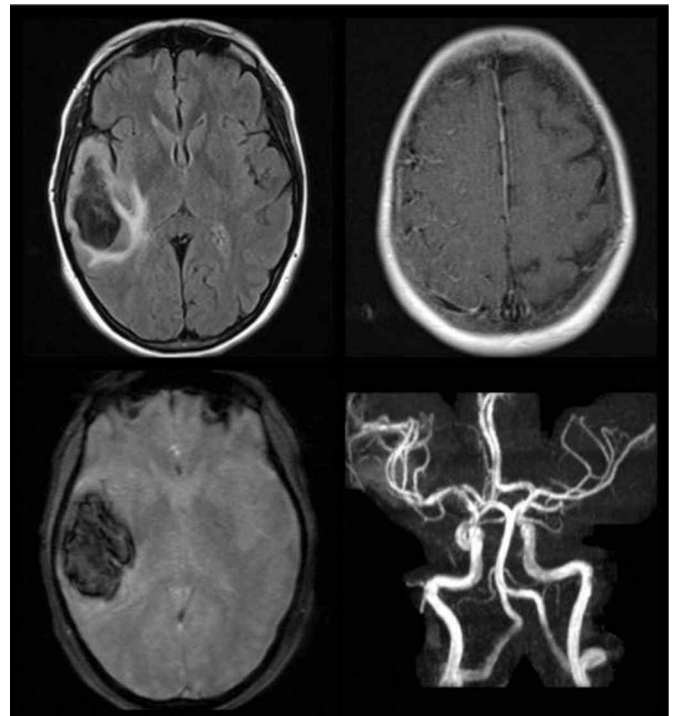
Stroke

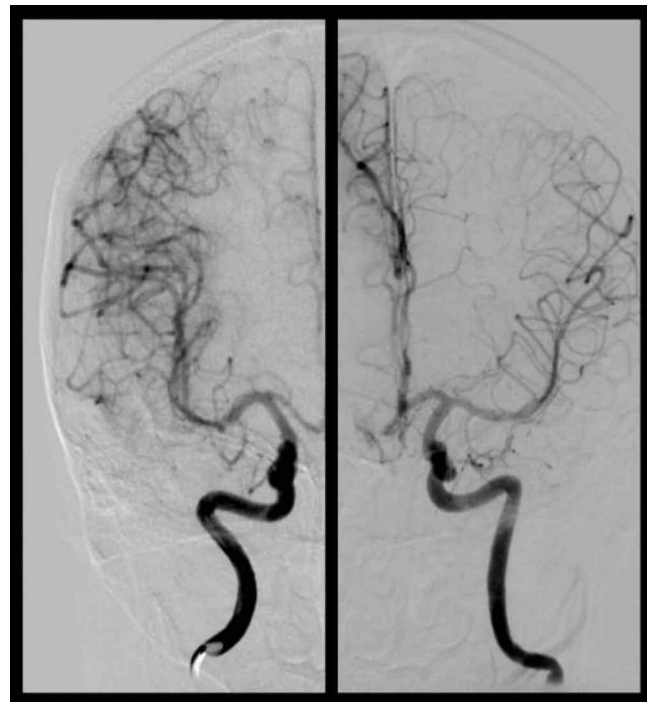
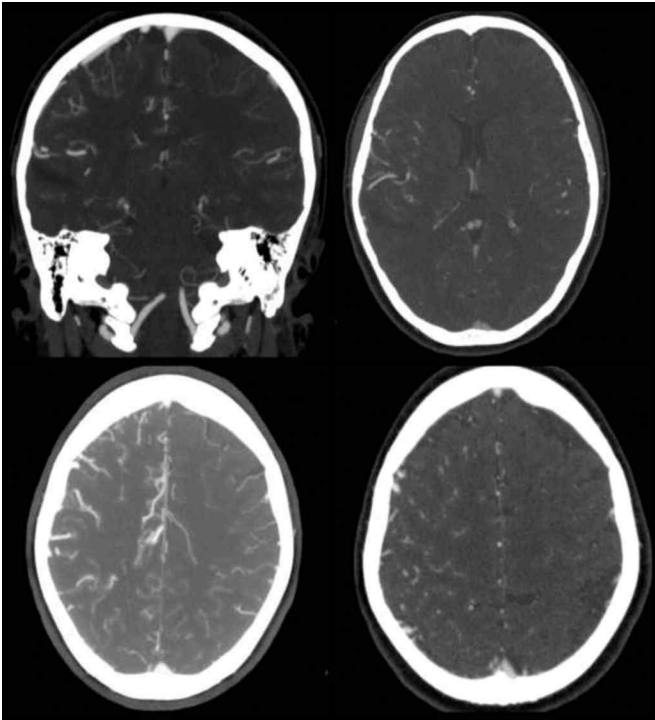
Early hemorrhage in initial cerebral proliferative angiopathy

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Cerebral proliferative angiopathy (CPA) is an unusual type of vascular malformation with unique clinical and imaging characteristics that distinguish it from the classic arteriovenous malformations. The features of CPA include absence of dominant arterial feeders or flow-related aneurysms, capillary angioectasia without large draining veins, and presence of intermingled normal brain parenchyma that is hypoperfused. CPA represents 3.4% of all AVMs, a few cases have been described in the world literature till now, after the original series of *Lasjaunias et al.* (2008) and the natural history presentation include seizures, headaches, and a lower risk for cerebral hemorrhage.

We described a 41 year-old woman presented recently aggravating headache with severe thunderclap exacerbation. Cerebral MRI, computed tomography angiogram and catheter angiography revealed a single right temporal hemorrhage without aneurysms and a minimal diffuse vascular network involving cortical vessels. A right hemispheric proliferative vascular malformation, without evidence of dural arteriovenous fistula, was diagnosed. This interesting presentation reveals a unique look for a initial CPA.





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1437
WFN15-0189
Stroke

Actuality of concept of sustainable personality change after cerebral vascular accidents

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Novelty of the topic: Establishing appropriate early treatment prolong survival of a stroke, at which time the concept of “quality of life” acquires new meanings.

Defining issues: The evolution of multiple strokes with partial neuromotor and cognitive rehabilitation get complicated with psychiatric hospitalization in time, not only due the changes in mnemonic-prosodic and logical plan, but consecutively sustainable personality change occurred.

Objective: Inventorization of changes in personality and sketching new achieved profile, on a sample of 30 patients, who presented previous ischemic stroke, with sequel in neuromotor plan and partial rehabilitation, with impaired cognition up to a decrease of MMSE of 25 points.

Hypotheses: The new profile will have as central features issues of irritability field, dysphoria, depression, maladjusted coping and dysfunctional adaptive mechanisms focused on addiction and increased primary narcissism, in egosyntonic manner.

Tools: MMSE, cognitive tests, CAQ multiphase personality inventory.

Results: It is confirmed the general and particular working hypotheses. *Exception:* new intrapsychic functioning is not Ego Sinton under conditions of diagnosis of enduring personality change.

Conclusion: Psychiatric hospitalization widens the area of healing opportunities, in terms of lifestyle counseling and management, with implications for family support.

Keywords: stroke, depression, rehabilitation, neuromotor plan, psychiatric illnesses.

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1438
WFN15-1553
Stroke

Cerebral venous thrombosis: clinical presentation in a Chilean cohort

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Background: Cerebral venous thrombosis (CVT) represents 0.5% of cerebrovascular diseases, affecting more frequently young women. The clinical presentation is classified in four types: i) Focal, ii) encephalopathy iii) intracranial hypertension iv) cavernous sinus syndrome. Due to this clinical polymorphism the differential diagnosis is always challenging.

Objective: To describe the clinical profile of patients presenting with CVT, admitted in the Neurology Unit, Barros Luco Trudeau Hospital, Santiago, Chile.

Patients and Methods: Retrospective study including medical records of 62 inpatients of the Neurology Unit, Barros Luco Hospital, Santiago, Chile, between January 2003 to December 2012.

Results: For the 62 cases reviewed, the average age at presentation was 37.2 years old (36.3 women, 43.1 men). Distribution by gender was 87% (54) women and 13% (8) men. The majority of the cases had a sub-acute presentation 71% (44), followed by acute cases 21% (13) and chronic 8% (5). The most common form of presentation was focal 71% (44) and less frequent were encephalopathy, intracranial hypertension and others.

Conclusions: As expected, CTV was more frequent in young women. Likewise, the main forms of presentation of CVT were focal neurological deficit and focal seizures, as described previously in literature. It should be noted in this serie the absence of cases with

cavernous sinus syndrome, more frequently described in developing countries linked to infectious causes. Overall, CVT is an important differential diagnosis for many neurological diseases and for this reason is extremely important a high index of suspicion for an early diagnosis and efficient treatment.

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1439
WFN15-1570
Stroke

Five years of thrombolysis in a Chilean hospital: leading a local initiative towards a national public health policy

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Background: Thrombolysis with recombinant tissue plasminogen activator (t-PA) for treatment of acute stroke was implemented in a public Chilean hospital in 2009, leading to a national guidelines for the disease treatment.

Aim: To describe the results of treatment of acute ischemic stroke with t-PA in a public hospital in Chile in a five years period.

Methods: Prospective analysis of all eligible patients with acute ischemic stroke that were admitted within 4 hours of its onset and had no contraindications for thrombolysis.

Results: In an five years period, a total of 200 intravenous thrombolyses were performed. The average age was 59.5 years, with no difference by sex. The average lapse between onset of symptoms and onset of thrombolysis was 193 minutes (SD 60.7), ranging from 10 min to 365 min. 54.1% of people arrived to emergency after 3 hours. Those patients who arrived before 3 hours were five years younger than the average ($p = 0.015$). A delay in time of arrival was related to a worse NIHSS outcome at 24 hours and 30-90 days.

Conclusions: A strict protocol setting of thrombolysis is successful for stroke treatment. Hemorrhagic complications were presented in 4% of the cases. Poor outcome was related to NIHSS above 12, therefore a CT angiography is required in all patients with NIHSS ≥ 10 , for eventual thrombectomy when the resource is available. Continuing education is required in emergency health services, family doctors and general population. A specialized team and permanent control of the protocol improves the outcome.

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1442
WFN15-0345
Stroke

Relationship between smoking and the lipid profile and lipoprotein (a) in cerebrovascular diseases

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LP (a) is a cholesterol-rich lipoprotein. Relevancy of high LP (a) levels with cerebrovascular diseases (CVD) is demonstrated. Serum LP (a) levels are under a tight genetic control. It has been identified in the studies that serum LP (a) concentrations exhibited quite different values among the populations and even among the individuals of the same population.

In this study, detecting the lipid profile and the levels of LP (a) in the smoking and non-smoking individuals having CVD, we made a comparison with the results obtained in previous studies.

We investigated whether a relationship existed between the smoking of the individuals with CVD and serum lipid profile and LP (a) levels and its impact on the prognosis. We detected that serum triglyceride levels were significantly high ($p < 0.05$) in smokers having CVD, and serum LP (a) levels are higher compared to controls, but not statistically significant ($p > 0.05$).

As a result, smoking adversely affects lipid profile and lipoprotein levels for the individuals with CVD. We believe that individuals having other risk factors for CVD should be warned.

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1444
WFN15-1502
Stroke

Variation of some oxidative stress and inflammatory markers after ischemic stroke

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Background: It is well known that oxidative stress and inflammation play a major role in the pathogenesis of ischemic brain injury.

Objective: To evaluate, by comparison, the changes in oxidative stress and inflammatory status after ischemic stroke.

Patients and methods: In a prospective study, we included 55 patients with acute ischemic stroke, comparing with 19 controls. We measured levels of some oxidative stress markers – albumin, uric acid and TAS (Total Antioxidant Status) and PCR and fibrinogen- as markers of inflammation-. The laboratory analyzes were done twice: in the first 3 days after onset of stroke and 2 months later. We assessed, comparatively, the dynamic evolution of the two types of markers.

Results: Oxidative stress markers presented initial significant lower levels ($p < 0.001$) and PCR and fibrinogen initial higher values ($p < 0.001$), comparing with controls. After two months, we remarked higher levels for albumin, uric acid and TAS and lower values for PCR as compare with the initial determination.

Conclusion: We point out a „mirror like” dynamic evolution of oxidative stress and inflammatory markers in patients with ischemic stroke in the first 2 months after the stroke onset.

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1445
WFN15-1376
Stroke

Awareness on acute stroke management among family medicine and internal medicine residents in Metro Cebu, Philippines

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Physician knowledge and attitudes regarding acute stroke and stroke prevention are increasing. However, awareness about best practice on diagnosing and managing stroke is still very limited. There is great potential for improving stroke outcomes simply by improving physician awareness about currently existing 'evidence-based medicine' regarding cerebrovascular disease.

The aim of this study was to determine level of awareness on acute stroke diagnosis and management amongst Family Medicine (FM) and Internal Medicine (IM) Residents in Metro Cebu.

In this descriptive, cross-sectional study 145 Family Medicine and Internal Medicine resident physicians in Metro Cebu from July 2013–August 2014 were respondents. A 5–10 minute questionnaire with 2 case scenario pertaining to ischemic and hemorrhagic stroke based on the latest Guidelines Published by the Philippine Stroke Society and Harrison's Principles Of Internal Medicine 18th edition.

Majority of the Family Medicine and Internal Medicine residents of Metro Cebu have high level of awareness on diagnosing and managing ischemic stroke (61.1%) and hemorrhagic stroke 87.6%. Chi square test for analysis, revealed respondents' level of awareness on Ischemic stroke ($p = 0.434$), on hemorrhagic stroke ($p = 0.0600$), and overall awareness ($p = 0.152$) did not show significant influence on their level of awareness. Despite this high level of awareness on stroke diagnosis and management most of the resident physicians (90%) agree that there is a need to have Continuing Medical Education lectures on Stroke Diagnosis and Management. Majority still want to develop their skills on early stroke recognition and prompt management.

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1446

WFN15-1377

Stroke

The incidence of post-stroke depression in a tertiary hospital in Cebu City, Philippines

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Depression is common after stroke with quoted rates ranging from 18% to 61%. Mood disturbance is common after stroke and may present as depression or anxiety. Psychological mood disturbance is associated with higher rates of mortality, long-term disability, and hospital readmission.

This study aims to investigate the incidence of post-stroke depression in a tertiary hospital in Cebu City, Philippines and to determine its associated factors

This is a prospective, descriptive, cross sectional survey involving 100 adult Filipino patients seen and diagnosed to have stroke either infarct or hemorrhage within January 1– July 31, 2014.

A total of 100 patients with stroke were interviewed using the 17-item Hamilton Depression Rating Scale questionnaire. The average age of the respondents was 60.50 years old \pm 1.18, majority were males (55%), 83% were married, and 81% were employed. The most common comorbidity was hypertension 78% followed by diabetes mellitus at 50%. Moreover, 39% of these patients had stroke in months, 26% in years, and 18% in weeks. The average functional capacity based on Modified Rankin Scale was 2.14 \pm 0.14. Among 100 patients, a total of 30 patients (30%) had depression: 2 (2%) very severe, 5 (5%) moderate and 23 (23%) had mild depression while 70 patients (70%) had no depression. Stroke located at the dominant hemisphere was not associated with severe depression ($p = 0.102$). A similar trend was also noted among those with stroke at the right side ($p = 0.183$), pons ($p = 0.634$), bilateral ($p = 0.776$), and midbrain ($p = 0.336$).

This study showed that majority of stroke patients were males with average age of 60.50 years. Hypertension was the most common co-morbidity. There was no association between stroke location and depression. The incidence of PSD was 30%.

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1447

WFN15-1475

Stroke

Increasing frequency of intravenous thrombolysis use in acute ischemic stroke over 17 years of experience in a single academic medical center

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Background: The main treatment for acute ischemic stroke is intravenous thrombolysis, improving clinical outcome at three months. This was proved in 1995 for intravenous thrombolysis within 3 hours from onset of stroke symptoms, and then extended to 4.5 hours in 2008, having direct implications in the management of stroke worldwide.

Objective: To determine the frequency of intravenous thrombolysis use in acute ischemic stroke over the last 17 years in Clínica Alemana, Santiago, Chile.

Patients and Methods: This is an observational study with data collected from RECCA, a prospective single center registry that includes all patients admitted to Clínica Alemana with acute strokes. Frequency of intravenous thrombolysis was determined for all patients with acute ischemic stroke between 1998 and 2014. This study is approved by the appropriate ethical committee.

Results: The study included 2,202 patients of whom 258 received intravenous thrombolysis (11.7%), 55.5% men. Mean age for patients with and without intravenous thrombolysis was 67.7 (SD 17.5) and 69.7 (SD 16.1) respectively ($p = 0.06$). Data along years showed an increasing frequency of intravenous thrombolysis, starting with 5.6% in 1998, having peaks in 2004 (14.9%), 2010 (21.2%) and ending with 22.4% use in 2014.

Conclusion: The increasing frequency of intravenous thrombolysis use could be partially explained by extended time for treatment to 4.5 hours from onset of stroke in 2008, and the incorporation of a stroke code in 2010 that accomplished a faster identification and triage in the emergency department.

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1448

WFN15-1185

Stroke

Cerebral white matter lesions and microcirculation retinal in stroke lacunar

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Background: The blood vessels in the retina are available for viewing in a noninvasive way and have similar anatomical, physiological as features small vessel brain. Also the white matter lesions (WMLs) brain are most frequently associated with lacunar stroke

Objective: To determine the relationship between cerebral white matter lesions and retinal microvascular alteration in lacunar stroke.

Material and methods: Cross-sectional study, patients with acute stroke was evaluated. Arteriovenous crossings, focal or diffuse arteriolar narrowing, retinal hemorrhages, cotton wool spots, alteration in vascular path, microaneurysms, the presence of retinal microvascular abnormalities was assessed. The WMLs were evaluated with a ranking of 1 to 9. Lacunar Stroke was classified by the score of TOAST.

Results: A total of 67 patients were evaluated, classified as lacunar stroke 23.88% (n:16), the average age was 70.06 years, 50% were men, the main risk factors hypertension 68.75%, hypercholesterolemia 50%, diabetes

31.25%. In reference to the degree of WMLs grade 4-9 was superior to no lacunar stroke with 68.75% vs. 56.86%, the presence of retinopathy was also higher in lacunar stroke with 68.75% vs. 52.94%, but we found the presence of retinopathy in patients without diabetes and hypertension.

Conclusion: WMLs and altering of retinal microcirculation are more prevalence in patients with lacunar stroke. Likewise, the retinopathy may be present in these patients despite not having recognized cardiovascular risk factors.

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1449

WFN15-1323

Stroke

Delirium in stroke acute

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Background: The delirium is a serious neuropsychiatric disorder and one of the most frequent complications in the hospital. The incidence of delirium after stroke ischemic or hemorrhagic, has been reported in up to 48% Delirium may be the clinical presentation of a stroke, or may occur as a complication.

Objective: Determine the presence, severity and correlation of delirium in patients with ischemic stroke acute.

Material and methods: Prospective study of longitudinal cohort, studied 162 patients diagnosed with ischemic stroke, The diagnosis of delirium was conducted according to the criteria defined by DSM-V and Confusion Assessment Method for the intensive care unit (CAM-ICU).

Results: A total of 162 patients were evaluated, the mean age was 74.94 (8.92) years, male with 50.31% (n = 82). Vascular risk factors were hypertension 79.75%, dyslipidemia 23.31%, diabetes 34.36%, previous stroke 25.77%, dementia 10.43%, and previous delirium 2.45%. The presence of delirium was 20.25% (n = 33). Compared patients with or without delirium, in hospital days was 9.21 (12.5) vs 4.22 (3) days, the mortality of 29.2% vs 12.8% (P < 0.0001) and functionality as measured by modified Rankin Scale 3.2 vs 2.9.

Conclusion: Delirium is a frequent complication and is associated with increased mortality and hospital stay, but most statistical studies would be needed to clarify the incidence and precipitating and predisposing factors in delirium associated with stroke.

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1450

WFN15-0831

Stroke

Migraine and internal carotid artery agenesis

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Congenital absence of ICA is a rare vascular anomaly and uncommonly it cause symptoms. (See Figs. 1 and 2.)

CASE REPORT: A 20-year-old woman showed up at the emergency service with a 2-day history of right-sided, throbbing and severe intensity headache, along with photophobia, phonophobia and nausea. She had similar headache previously but never so intense and prolonged pain. She

was asymptomatic after intravenous dipyrone. Head CT scan was considered normal and she was discharged.

A few days later, even though she remained asymptomatic, her head magnetic resonance angiography (MRA) revealed absence of flow within the internal carotid artery (ICA), without other changes. The patient subsequently underwent conventional angiography, which showed a right common carotid artery (CCA) with diminished caliber that terminated in external carotid artery (ECA), with no remnant of ICA. Cervical MRA did not reveal any signs of dissection. Finally, the CT scan of the skull base displayed absence of the right carotid channel, therefore allowing us to diagnose ICA agenesis.

We concluded this patient had migraine and an incidental finding of unilateral ICA agenesis.

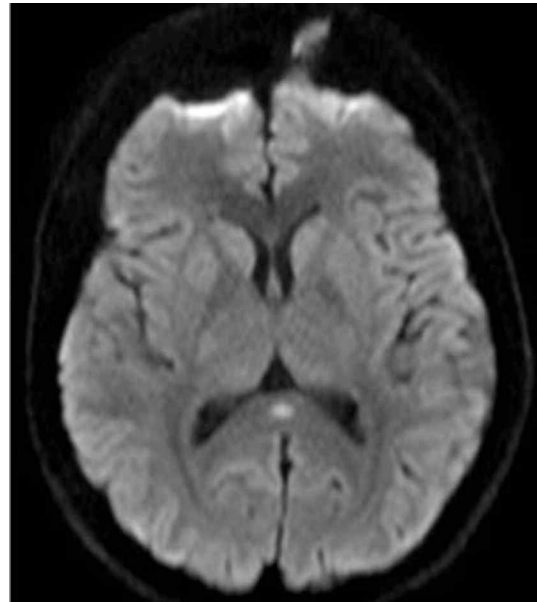


Fig. 1. Angiogram reveals absence of the right internal carotid artery and normal left internal carotid artery.

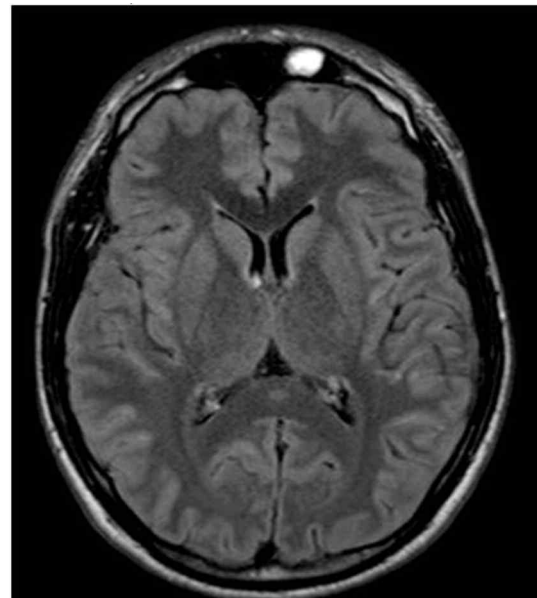


Fig. 2. CT scan of the skull base shows the absence of the right carotid channel.

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1451

WFN15-1240

Stroke

Cognitive impairment up to 5 years after minor stroke

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Background: Cognitive impairment are common after stroke. Little data is available to the long-term cognition after stroke, especially after minor stroke.

Objective: To know the prevalence and the associated factors of cognitive impairment at 5 years after first-ever minor ischemic stroke.

Methods: Data were collected from the PROspective cohort study on Incidence and Outcome of patients with post-stroke Depression in China (PRIOD). Patients with first-ever minor ischemic stroke (n = 757) were assessed for cognitive function using Mini-Mental State Examination (MMSE) or modified telephone interview for cognitive status (TICS-m) at the follow up of 14 ± 2 days, 3 months and 5 years, respectively. Cognitive impairment was defined as MMSE < 24 or TICS-m ≤ 24.

Results: The mean age of the patients was 61.1 ± 11.5 years. The prevalence of cognitive impairment was 21.7% (95% CI 16.3-27.1) at 5 year after stroke, respectively. After adjusting for post-stroke depression at the first year after stroke and functional status at 1-year, age (OR 1.11, 95% CI 1.05-1.18), high education level (OR 0.25, 95% CI 0.08-0.75), cognitive impairment at 14 ± 2 days (OR 5.33, 95% CI 1.25-22.62), and stroke recurrence at follow-ups (OR 3.98, 95% CI 1.38-11.52) were independently associated with cognitive impairment at 5 years after stroke.

Conclusion: Approximately 1 in 5 patients with first-ever minor stroke had cognitive impairment at 5 years after stroke. Age, incident cognitive impairment at acute phase of stroke and stroke recurrence significantly increased the risk of long-term cognitive impairment. Patients with high education level were less likely to be cognitive impaired at 5 years.

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1452

WFN15-0175

Stroke

Arterial hypertension and diabetes on ischemic stroke vs myocardial infarction

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Introduction: Arterial hypertension and diabetes are very well known factors of risk for having myocardial infarction or ischemic stroke by damaging the small arteries located on the heart or on the brain.

Methods: We included in this study 200 patients : 100 of them had an ischemic stroke and 100 of them had myocardial infarction. For every patient we took the factors of risk such as arterial hypertension, diabetes and we compared those levels with 100 persons of the same age presenting no disease.

Results: There are 7% more hypertensive patients suffering from stroke than hypertensive patients suffering from myocardial infarction and 29% more hypertensive patients suffering from stroke than hypertensive patients from the group of control. There are 7% more diabetic patients suffering from stroke than diabetic patients

suffering from myocardial infarction and 14% more diabetic patients suffering from stroke than diabetic patients from the group of control. The differences between all groups are statistically significant.

Conclusions: Arterial hypertension and diabetes are 2 important risk factors for stroke and myocardial infarction. Diabetic patients should be more predisposed to be affected by myocardial infarction and hypertensive patients should be more predisposed to be affected by ischemic stroke. Arterial hypertension damages mostly the blood vessels located in the brain and diabetes damages mostly arterial vessels located on the heart.

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1453

WFN15-0193

Stroke

The impact of hematocrit levels in stroke

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Introduction: The hematocrit is the proportion, by volume, of the blood that consists of red blood cells. The hematocrit (hct) is expressed as a percentage. It is considered an integral part of a person's complete blood count results, along with hemoglobin concentration, White blood cell count, and platelet count.

Aim: To investigate if patients having high or low hematocrit levels present a higher risk of having ischemic or hemorrhagic stroke.

Methods: We included in this study 660 patients that were hospitalized in the clinic of neurology, in CUH « Mother Teresa », Tirana. 330 of them had an ischemic stroke and 330 were hospitalized with a different neurological diagnoses (Hemorrhagic stroke, epilepsy, or other diagnoses). For every patient we took the hematocrit levels and we compared those levels for patients presenting ischemic stroke, hemorrhagic stroke, epilepsy or other neurological diagnoses.

Results: The average of hematocrit levels was 39.93% for patients having ischemic stroke and 38.89% for patients having a different neurological diagnoses, with a difference of 1.04% between them.

The average of hematocrit levels was 38.32% for patients having hemorrhagic stroke with a difference of 1.61% with ischemic stroke and 0.37 with patients having a different neurological diagnoses.

The average of hematocrit levels was 37.7% for patients having epilepsy with a difference of 1.19% with patients presenting a different neurological diagnoses.

All those levels were statically not significant.

Conclusions: Hematocrit levels have no impact on stroke or other neurological diseases.

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1454

WFN15-0697

Stroke

Evaluation of eye movement and vestibular function in posterior circulation infarction

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Background: About 20% of cerebral infarction patients appear posterior circulation infarction (PCI), which is characterized by

complex clinical manifestations, high misdiagnosis rate and poor prognosis. The diagnosis of PCI mainly depends on medical history, physical examination and radiographic examination. Recent studies have found that eye movement and vestibular detection contributed to the PCI diagnosis.

Objective: To evaluate clinical application value of eye movement and vestibular function detection in the diagnosis of PCI patients.

Methods: This study was approved by the Institutional Review Board. Thirty PCI patients were included in this study and their clinical information were collected. All patients were detected with eye movement examinations (including gaze test, saccade test, smooth pursuit test and optokinetic nystagmus test) and vestibular function examinations (including spontaneous nystagmus test, head shaking test and fixation suppression test), by using the videonystagmography.

Results: Eye movement examinations showed the abnormality in 22 cases (73.3%), in which 5 cases (16.7%) by gaze test, 12 cases (40.0%) by saccade test, 17 cases (56.7%) by smooth pursuit test and 13 cases (43.3%) by optokinetic nystagmus test. Vestibular function detection showed that 30 patients completed spontaneous nystagmus test, in which 10 cases (33.3%) were positive; 23 patients completed head shaking test, in which 8 cases (34.8%) were positive; 27 patients completed fixation suppression test, in which 8 cases (29.6%) failed in the test.

Conclusion: Eye movement examination is helpful for recognizing PCI; the lesioned hemisphere in patients with cerebellar infarction is consistent with the horizontal component of spontaneous nystagmus and head shaking nystagmus.

[Keywords] Posterior circulation infarction; Vertigo; Eye movement; Nystagmus; Vestibular function

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1455

WFN15-0874

Stroke

Predictive recurrence value of RRE-90 score and the ESRS in ischemic stroke and minor ischemic stroke

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Background: Ischemic Stroke (IS) is one of the leading cause of morbidity and mortality worldwide. Precious studies have validated the Essen Stroke Risk Score (ESRS) in predicting recurrence risk of stroke in Chinese patients. Recently, Recurrence Risk Estimator at 90 days (RRE-90) has been developed to predict early risk of recurrence after IS. However the prognostic of this score has not been evaluated in Chinese patients.

Objective: To investigate the prognostic value of RRE-90 in patients with IS and minor ischemic stroke (MIS).

Patients and Methods: Clinical data from 218 patients with IS and 141 patients with MIS were analyzed retrospectively. The recurrence risk of different score was predicted using COX regression model with time to recurrent stroke as the response and clinical and imaging features typically available to physician at admission as covariates. The 90-day risk of recurrent stroke was calculated by summing up the number of independent predictors weighted by their corresponding beta-coefficients. The resultant score was called recurrence risk estimator or RRE-90 score (available at: <http://www.nmr.mgh.harvard.edu/RRE-90/>).

Results: The recurrence risk of stroke in patients with IS increased with the increasing RRE-90 scores. Compared to patients with a RRE-90 score = 1, the risk of stroke in patients with a RRE-90 score = 4 was 5.231 ($P = 0.04$) and a RRE-90 score = 5 was 7.000, ($P = 0.02$). The prognostic value of RRE-90 and ESRS measured by area under the ROC curve (AUC) was not different ($P > 0.05$) in patients with IS and MIS.

Conclusion: RRE-90 score ≥ 4 correlates with a higher risk of stroke recurrence in patients with IS. ESRS and RRE-90 are equally able to stratify the recurrence risk of stroke in Chinese patients.

[Keywords] ESRS; RRE-90; Recurrence Risk; Ischemic stroke; Minor ischemic stroke

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1456

WFN15-1562

Stroke

Contemporary trends in recombinant tissue-type plasminogen activator utilization for ischemic stroke in the United States

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Background: Recombinant tissue-type plasminogen activator (rtPA) is the only approved therapy for acute ischemic stroke (AIS). Data suggest its underutilization in general, and in females in specific.

Objective: Given the ongoing increase in both its awareness, and the incentives to increase rtPA use, we hypothesize that rtPA utilization should increase, and the gender gap to eventually close.

Patients and Methods: By accessing the Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample (NIS) database, and using the appropriate ICD 9 codes, we identified all AIS adult admissions between 2001 and 2011. We also looked up procedural codes to identify patients who received intra-arterial endovascular recanalization therapy (ERT). P-value for all trends was determined by Cochran-Armitage trend test.

Results: 938,035 admissions were studied. 25,934 cases (2.76%) received rtPA, of which 5,220 cases (0.56%) received ERT, while in 20,614 cases (2.20%) only IV rTPA was received. The overall increase in utilization between 2001 and 2011 was about 4.1 folds (1.19% to 4.85%; $p < 0.001$). Both ERT and IV rTPA subgroups showed a significant ($p < 0.001$) increase in utilization (0.23% to 0.79%; and 0.96% to 4.06% respectively). Males had higher overall utilization, but the overall increase in trend was higher in females (1.02% to 4.69%; $p < 0.001$) in females vs. (1.40% to 5.03%; $p < 0.001$) in males.

Conclusion: There has been a significant increase in utilization rates of thrombolytic therapy over the past ten years in AIS patients. The previously identified gender gap in rTPA utilization is decreasing.

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1457

WFN15-1389

Stroke

Orthostatic transient ischemic attacks due to carotid artery dissection

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Orthostatic transient ischemic attacks appear to occur only with large vessel occlusions. In these patients, collateral blood supply is marginal and unable to support normal postural autoregulation, produce alteration in local cerebral blood flow without any concomitant drop in systematic blood pressure. We describe a woman in whom recurrent, dramatic transient clinical worsening accompanied elevation from the supine toward the erect position, though postural hypotension was not present.

A 44-year-old female without any cardiovascular risk factors, admitted to the emergency unit with weakness on the right side. She mentioned about her daughter's elbow hitting her neck three weeks ago, followed by headache, and neck pain. During the last 3 hours, she experienced five transient right hemiparesis episodes within seconds of standing up, resolving by lying down. Neurological examination revealed mild hemiparesis including the face (4/5). Blood pressure was 130/90 mm of Hg, in supine and erect positions. Cardiac and laboratory examinations were within normal limits. There was no sign of acute ischemia in the first DiffusionWeighted (DW) MRI, but MRAngiography revealed occlusion of the left internal carotid artery from bifurcation to cavernous segment, a high signal crescent sign within an abnormal vessel contour, absent flow void in the lumen. She was diagnosed as carotid artery dissection and was treated with enoxaparin along with clopidogrel, followed by oral anticoagulation for six months. DWMRI demonstrated a small acute ischemic infarct, one week later. Her mild hemiparesis improved in one week.

Dissection is a common cause of stroke in young patients, however, it has seldom been associated with the symptomatology of orthostatic TIA as seen in this patient.

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1459

WFN15-0411

Stroke

Insular cortex involvement is associated with cardiac marker and atrial fibrillation in acute ischemic stroke

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Background: Insular stroke is associated with poor functional outcome. Clinically significant effects of insular infarction on cardiovascular parameters during hospitalization following stroke are not well established. Objective: Our objective is to better define insular involvement in acute ischemic stroke and its relationship with stroke severity and clinically relevant cardiovascular conditions and markers. Patients and Methods: We analyzed clinical, brain imaging, and laboratory data of 304 consecutive patients (174 women; mean age 67.1 ± 12.4 years) with acute ischemic stroke who underwent MRI within 72 hours of stroke onset. Results: Insular involvements were present in 53 patients. Twenty four had major involvement, and 29 had minor involvement. Insular involvement was associated with age, higher National Institutes of Health Stroke Scale (NIHSS) and modified Rankin Scale (mRS) scores, lower estimated glomerular filtration rate, elevated serum free fatty acid and creatinine kinase-MB (CK-MB), and presence of atrial fibrillation ($p < 0.05$). Multivariate logistic regression analysis demonstrated that CK-MB (OR, 1.14 for every 1 U/L; 95% CI, 1.02–1.26, $p < 0.05$) and

the presence of atrial fibrillation (OR, 5.25; 95% CI, 1.97–13.95, $p < 0.01$) were independently related with insular cortex involvement in acute ischemic stroke. Conclusion: These findings suggest that insular cortex involvement in acute ischemic stroke is associated with cardiac derangement leading elevated CK-MB. The insular cortex is commonly involved in atrial fibrillation-related stroke.

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1461

WFN15-0617

Stroke

Stroke in pregnant and postpartum women: description of 14 cases among a series of 334 ischaemic strokes in young adults

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Background: Ischaemic stroke (IS) is a devastating event for a pregnant or post-partum woman, which can result in long-term disability.

Methods: We have prospectively studied the prevalence of pregnant or post-partum women in a hospital-based series of 334 young adults (<45 years) between 2005 and 2014 with an acute IS confirmed by MRI. We have obtained patients approval, as necessary. The patients were investigated by a standardized protocol including biological and toxicological screenings, cardiac and vascular check up.

Results: 14 out of 159 females (8 pregnant and 6 post-partum) with mean age of 30.8 ± 0.3 were diagnosed with IS. Four patients had history of pre-eclampsia and 2 had miscarriages in the past. Tobacco use was present in 5/14 and migraine in 4/14 as the most prevalent risk factors. As to aetiologies: 4 IS were due to intracranial arterial stenosis, 3 to cardioembolism, one case to cervical artery dissection and one to haematological disease. In five cases the aetiology for stroke was unknown. Eleven patients received antiplatelet therapy and 3 curative anticoagulation. There was no recurrence of stroke in our group. Mean NIHSS at discharge was 0.8, and mRS at 3 months was ≤ 2 for all patients.

Conclusion: Pregnancy and post-partum represented 9% of women who developed a stroke in our series. The occurrence of stroke in these periods are associated with increased risk of IS due to physiological changes etiologically related to hemodynamic factors, hypercoagulability and connective tissue changes. The outcome was favourable and risk of recurrence was low.

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