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Central and peripheral hemodynamic vascular changes in primary persistent visual disturbance: a case report

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Introduction: Primary Persistent Visual Disturbance (PPVD) is a relatively rare condition that affects migrainous patients with aura. It is characterized by a visual phenomenon which lasts more than a week, in the absence of cerebral infarction.
Objective: This report describes a case of central and peripheral hemodynamic altered patterns in a patient with PPVD.
Methods: Male, 32 years old, with PPVD for 6 years, referring bitemporal flickering dark spots and stains which worsen while standing and practicing physical activities and decrease while lying down or resting. Tilt testing was performed (70°, 20 minute protocol, without drug infusion) to evaluate: Peripheral Vascular Resistance Index (PVRI), Stroke Volume Index (SVI) and Cardiac Index (CI). Transcranial Doppler Ultrasonography (TCD) was performed to monitor middle brain artery blood flow velocity and Pulsatility Index (PI). I have obtained patient approval, as necessary.
Results: On supine position, 5 min of tilt and 20 min of inclination the test showed (respectively) reduction of the CI (1,9; 2,0 and 2,4) and SVI (21; 18,1 and 19,6) and increase in PVRI (4175; 4576 and 3460). DTC showed oscillatory reduction of the middle brain artery flow velocity and an alternating pattern of contraction and expansion on PI.
Conclusion: This report describes findings of central and peripheral changes in hemodynamic patterns in a patient with PPVD, suggesting that further studies might be helpful to determine the real relevance of these findings to the course of the disease.

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Usefulness of ICHD3B criteria to differentiate primary from non-primary headaches at the emergency service

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0022-510X/$ – see front matter.

Introduction: Non-traumatic headaches account for 0.5 to 4.5% at the emergency service (ER). Although primary headaches represent the most common causes, the likelihood of ominous etiologies has to be considered by clinicians in order to avoid diagnostic and therapeutic pitfalls. We hypothesize that ICHD3B criteria could be a useful tool to identify primary and non-primary headaches.
Objectives: To determine the usefulness of ICHD3B criteria to differentiate primary from non-primary headaches at the ER.
Patients and methods: Cross-sectional study comparing the prevalence of ICHD3B fulfilled criteria, age over 50, sleep headache onset, associated symptoms, abnormal neuro-exam, sudden onset, immunosuppression, consumption of analgesics before consultation and history of migraine. PRs (Prevalence Ratios) were calculated.
Results: Headache was responsible for 276 (2.5%) out of 11,450 admissions. Median age was 32 years, IQR (25%–75%): 23–50.5, range 18–88, 77.8% females. Primary, non-primary and unclassified headaches were 59%, 34% and 7% respectively. Migraine and cervicogenic headache associated to myofascial trigger points were the most frequent causes for primary and non-primary causes respectively.

Factors associated to primary headaches were ICHD3B fulfilled criteria (PR: 18.7, IC 95% 7.1–48.6), history of migraine (PR: 2.9, IC 95% 2.1–3.9) and history of similar episodes (PR: 2.7, IC 95% 2.3–3.3). Factors associated to non-primary etiologies were immunosuppression (PR: 2.7, IC 95% 2.3–3.3) and age over 50 (PR: 2.7, IC 95% 2.01–3.62).
Conclusion: ICHD3B criteria could be useful to differentiate primary from non-primary headaches. This observation is also valid for immunosuppression, age over 50, history of migraine and similar episodes.

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MDR1 C3435T polymorphism predicts anti-epileptic prophylactic therapy response in Turkish migraine patients

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Background: The purpose of prophylactic migraine therapy is to reduce the frequency and severity of migraine attacks. Gene polymorphisms may interact with treatment response in many diseases. Our objective was to investigate the impact of gene polymorphisms in migraine prophylactic therapy, particularly amitriptyline, propranolol, topiramate (TPM) and valproic acid (VPA).
Methods: A total of 219 (F: 200, M: 19) migraineurs were retrospectively enrolled in the study. 137 subjects were on propranolol, 136

amitriptyline, 100 TPM and 50 were on VPA treatment. MDR1, CYP2D6, and CYP2C19 polymorphisms were analyzed on the DNA samples obtained from peripheral blood of all the patients on preventive treatment, by Polymerase Chain Reaction (PCR)-Restriction Endonuclease Fragment Length Polymorphism (RFLP) method and data was confirmed with an automatic sequence analysis device (Beckman Coulter). We have obtained patient and/or Institutional Review Board (IRB) approval, as necessary.

Results: Among 111 patients who were on AED therapy, 71 were resistant to AEDs while 40 responded to them. In the treatment resistant group (n: 71), 81.6% (n: 58) showed MDR1 C3435T polymorphism. In the treatment responsive group (n = 40), MDR1 C3435T polymorphism was positive in 25 (62%). The presence of MDR1 C3435T polymorphism in the treatment resistant group was higher compared to the treatment responsive group ($p = 0.027$). No association was found between the gene polymorphisms and treatment response in patients who were on propranolol and amitriptyline.

Conclusion: Our results suggest that MDR1 C3435T polymorphism is associated with AED therapy response in Turkish migraineurs. However, it is not the only factor predicting prophylactic treatment response.

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Study of prevalence and genesis of migraine in relapse-remitting and relapsing secondary progressive MS patients: a preliminary report

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Background: Multiple sclerosis and migraine are significantly prevalent diseases. The association between multiple sclerosis and migraine seems to be more than casual. Several studies have been conducted, both on the correlation between multiple sclerosis and migraine and on the genesis of migraine in the brainstem.

Objective: To determine the prevalence of migraine in relapse-remitting and relapsing secondary progressive MS patients; to study the association between migraine prevalence and the presence of demyelinating lesions in the brainstem.

Patients and methods: Cross-sectional study of relapse-remitting and relapsing secondary progressive MS patients aged 20–60 years. EDSS score ≤ 7. Not in use of interferon or migraine prophylactics. Data collection: standardized questionnaire for the diagnosis of migraine; data record protocol for patient identification and registration of data related to type of MS and topography of lesions from MRI studies.

Results: Eleven (N = 11) patients were studied: 36.3% secondary progressive and 63.7% remitting-relapse. Mean age 42.4 years. Male:female ratio 1:1.8. Mean EDSS score 4.5. Demyelinating lesions in the brainstem were confirmed by MRI in 36.3%. Mean prevalence of migraine (N = 11): 66%. Prevalence of migraine in patients without plaques in the brainstem: 57.1%. Prevalence of migraine in patients with plaques in the brainstem: 75%.

Conclusion: Plaques in the brainstem can be an important contributing factor for the genesis of migraine in patients with multiple sclerosis. We confirm a larger prevalence of migraine in multiple sclerosis patients when compared to the general population.

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

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The relationship between patent foramen ovale, and mitral valve prolapsus with white matter hyperintensities in migraine patients

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Background: Migraine is a common headache disorder that may be associated with vascular disease and cerebral white matter hyperintensities (WMHs) on MRI scan.

Objective: The aim of this study was to evaluate the relationship between PFO and MVP with WMHs in young adult migraine patients without vascular risk factors.

Patients and methods: We conducted a case–control study to assess the prevalence of PFO and MVP in subjects with and without migraine. We recruited 198 migraine patients with a mean age of 34.21 ± 7.8, and 161 healthy controls with a mean age of 34.58 ± 8.5 (age ranged 18 to 50). Participants had no known anemia, vascular risk factors, or inflammatory disease. Both groups underwent brain magnetic resonance imaging to detect white matter hyperintensities and trans thoracic echocardiography (TTE) to detect MPV and PFO, along with septal aneurysm, ventricular septal defect, and atrial septal defect.

Results: The WMHs were found higher in migraine patients (38.9%) compared with controls (11.2%). The prevalence of PFO and MPV was not found to be different between migraine and control groups ($P > 0.05$). The other echocardiographic abnormalities such as septal aneurysm, ventricular septal defect, and atrial septal defect were found 0.5% higher in frequency in migraine patients. However these later echocardiography findings were not also associated with the presence of WMHs in migraine patients.

Conclusion: We found no association between the presence of WMHs in MRI and the presence of PFO or MPV in the TTE findings in migraine patients when compared with control subjects.

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Mean platelet volume in migraine patients

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Background: Migraine is a common headache disorder that may be associated with inflammation and subclinical vascular disease. Platelet dysfunction has been linked to the pathophysiology of migraine.

Objective: To evaluate mean platelet volume (MPV), a potential marker of platelet reactivity, in young adult migraine patients.

Methods: This case–control study included 520 subjects: 260 migraine patients (without aura, 169 patients; with aura, 91 patients) and 260 healthy controls (age range, 18 to 50 years). Participants had no known anemia, vascular risk factors, or

inflammatory disease. We evaluated serum mean platelet volume in migraine and control subjects.

Results: MPV was found to be greater in migraine patients (8.4 ± 1.2 fL) than controls (7.53 ± 1.02 fL; $P \leq .001$), along with a high sensitivity C-reactive protein (hCRP) level ($P < 0.0001$), although MPV was not found to be correlated with hCRP level ($r < -0.227$; $P < .05$). There was a weak correlation between MPV and headache duration in migraine with aura patients ($r = 0.26$; $P < .013$). The hs-CRP and MPV were found to be increased by 2.36-fold, and 2.32-fold, respectively in migraine patients.

Conclusions: High MPV levels in migraine patients may suggest that platelet activation may have a role in the pathogenesis of migraine.

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