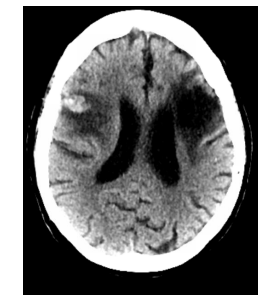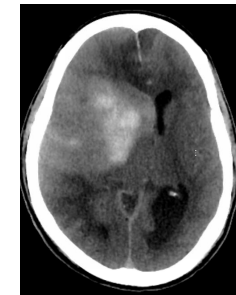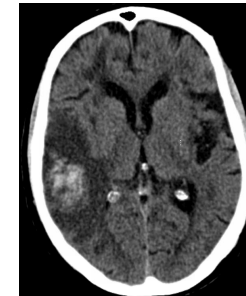# Hemorrhagic Transformation after Ischemic Stroke

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Disclosures

Brazilian Ministry of Health: Resilient trial

Brazilian Ministry of Health : OPTIMAL trial

BARD: scientific consultancy, speaker

Boehringer Ingelheim: Resilient Extend trial, scientific consultancy, speaker

Pfizer: scientific consultancy, speaker

Biogen: National PI, CHARM trial

NIH: National PI MOCHA

Learning objective(s)

Understand the clinical importance of Hemorrhagic transformation (HT)

Understand subtypes of HT and its neuroimaging characteristics

Discuss the pathophysiology of HT

Identify predictors of HT

Discuss the acute management of HT

Key Messages

Even asymptomatic HT can lead to less neurological recovery

Neuroimaging alone cannot predict the risk of HT

Combined evaluation can help to better select patients with high chance of HT

Risk prediction in untreated patients may reduce the chances of complications

References and Findings

Prognosis	All subtypes	Hematomas	All radiological Subtypes	Symptomatic Cases	Asymtomatic Cases
Neurological worsening in 24h		Fiorelli et al. (1999)¥ ; Berger et al. (2001)**	X	Kimura et al. (2008)	Kimura et al. (2008)
Intrahospital Mortality	Heuschmann et al. (2004)¥; Nagaraja et al. (2018)	X	X	Goldstein et al. (2010); Kalinin et al. (2017)£; Gumbinger et al. (2011) ¥; Tanne et al. (2002)	Kalinin et al. (2017); Tanne et al. (2002)
90 day Mortality	Strbian et al. (2011)¥	Fiorelli et al. (1999)¥ ; Berger et al. (2001)**; Toni et al. (1996); Amaro et al. (2011) ¥	X	Hong et al. (2008) ; Paciaroni et al. (2008) ; Park et al. (2012); Gnofam et al. (2013) ¥	Park et al. (2012)
Functional Outcome at Discharge	Nagaraja et al. (2018)	X	X	Kalinin et al. (2017)£; Tanne et al. (2002)*, Demchuk et al. (2001) ¥	Kalinin et al. (2017); Tanne et al. (2002)
Functional Outcome in 90 days	Demirtas et al. (2019)£, Annan et al. (2015)¥	Toni et al. (1996); Amaro et al. (2011) ¥	Dzialowski et al. (2006)¥; Nogueira et al. (2015)¥; Kranedonk et al. (2019)¥	Hong et al. (2008) ; Paciaroni et al. (2008) ; Lei et al. (2014); Park et al. (2012); Gumbinger et al. (2011) ¥; Uyttenboogaart et al. (2008) ¥; Libman et al. (2012); Park et al. (2018) ¥ Bellwald et al. (2018) ¥	Lei et al. (2014); Park et al. (2012)
Functional Outcome in 6 months	Motto et al. (1999)**	X	X	Lei et al. (2014)	Lei et al. (2014)
Functional Outcome in 12 months	X	X	X	Lei et al. (2014)	Lei et al. (2014)
No influence upon prognosis	André & Pinheiro (1995); Tan et al. (2014); Mori et al. (1992); Purrucker et al. (2017); Jia et al. (2015); Kablau et al. (2011); Ntaios et al. (2012); Kim et al. (2014); Toni et al. (1996); Berger et al. (2001); Boisseau et al. (2019)	X	X	X	X

Thank you!

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