Posterflashes
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1
Early recanalization rate of acute middle cerebral artery occlusion after intravenous thrombolysis
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Introduction: We evaluated the early recanalization rate after intravenous (IV) thrombolysis in patients with acute middle cerebral artery (MCA) occlusion.
Methods: All patients with M1-MCA occlusions (defined up to trifurcation) receiving IV recombinant tissue plasminogen activator (rt-PA) in the period 2009–2010 admitted to the department of Neurology (n = 37) were reviewed retrospectively. To analyze the recanalization rate (according to Thrombolysis In Myocardial Infarction flow grades [TIMI 2/3] and Mori grading system [MORI 3/4]) after IV rt-PA we selected those patients which received a cerebral digital subtraction angiography (DSA) in the context of a bridging therapy.
Results: 27 patients were scheduled for a cerebral DSA (in 3 patients there was no requirement of a cerebral DSA because of a considerable clinical improvement and probably spontaneous recanalization confirmed 24hours later by ultrasound). 10 patients had not been considered for a cerebral DSA because of different reasons. The 24 selected subjects receiving a cerebral DSA had a median baseline NIH Stroke Scale of 14 and the mean age was 68 yrs. 16 patients had a proximal M1-MCA occlusion (66.7%) and 8 patients had a distal M1-MCA occlusion (33.3%). 13 of 27 patients had a hyperdense middle cerebral artery sign (HMCAS), among them 2 had a recanalisation after IV rt-PA. The mean time to initiation of IV rt-PA was 54 min.. The mean time from beginning IV rt-PA to the first imaging of M1-MCA in cerebral DSA was 142 min. (range 53–270 min). 3 of 24 patients (12.5%) had a recanalization after IV rt-PA. Two of them had still a M2-MCA occlusion. In summary 3 patients scheduled for a cerebral DSA and 3 patients undergoing a cerebral DSA had early recanalization after IV rt-PA.
Conclusions: A low rate (22.2%) of early recanalization was observed in patients with M1-MCA occlusion after IV rt-PA alone. For most of the patients an intravenous thrombolysis wasn't a sufficient therapy. Other therapeutic options are needed (bridging therapy, local reperfusion therapy alone, more efficient thrombolytic drugs).

2
Crossed somatoparaphrenia: an unusual new case and review of the literature
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Background: Somatoparaphrenia is a delusional misidentification and confabulation of body parts, usually arm or hand, opposite to a cerebral lesion, generally of the "minor" right hemisphere. the lesions are often extensive, implicating not only parietal but also frontal structures.
Methods and Results: We here present a patient with somatoparaphrenia who is unusual in all these respects, that is: 1) He is a right-hander with a "dominant" left-hemisphere lesion, aphasia and ideomotor apraxia, but also mild right hemineglect, he thus has "crossed" somatoparaphrenia; 2) His delusional misidentification concerned the right leg and not the arm or hand (second report ever), and 3) the lesion site is very posterior, a left occipito-parietal hemorrhage with a right hemianopsia and mild right hemiparesis.
Conclusion: We present this case together with the seven other cases of "crossed" somatoparaphrenia with and without aphasia we found in the literature since 1935 and discuss the relativity of "cerebral dominances" of different brain functions.

3
Development of the visuo-spatial working memory network across childhood
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Background: Working memory (WM) is a core cognitive ability, influencing the development of basic academic skills, planning and problem solving. Neuroimaging studies in adults have mapped visuo-spatial WM in a fronto-parietal network, shown to be related to WM performance. Little is known about changes in the WM network across development. This study aimed to characterize development of the

visuo-spatial WM network and its relation to WM performance in childhood.

Methods: A total of 44 healthy children aged 7–12 yrs (y) were recruited from the NEMO study. All children underwent a neuropsychological assessment to measure WM and general intellectual abilities and completed fMRI to detect the neural network of visuo-spatial WM (dot location task, Klingberg et al. 2002). Data of 39 children (20 males) were included in the analysis performed with SPM8. Laterality indices (LI) were calculated to assess the asymmetry of visuo-spatial WM activation.

Results: Three main activation clusters were found in the superior and mid frontal region and the superior parietal region bilaterally. The WM network differed with age and with WM performance. Significant changes occurred between the ages of 7–12y in frontal and parietal areas. In frontal areas, laterality became more right-sided in younger (7–9y, r=−0.360) and more bilateral in older children (r=0.331). A different developmental pattern occurred in the parietal region, with activation becoming more right-sided between 7–12y (r=0.498). There was a correlation between WM activation and WM performance. High-performers showed significantly stronger right-sided parietal activation (LI=−0.454) than low-performers (LI=−0.060, p=0.014), even when correcting for age and gender.

Conclusion: The visuo-spatial WM network in childhood develops with age and with working memory performance. Significant changes in frontal and parietal regions occurred between the ages of 7–12y. Changes in laterality differed between frontal and parietal regions, suggesting specificity of these two regions in visuo-spatial WM performance. Furthermore, changes in the WM network were associated with performance; with more extended activation in the right hemisphere in high-performers. Overall, these findings highlight the dynamic changes occurring in the healthy developing brain from 7–12 yrs.

4

Periprocedural thrombembolic events associated with angioplasty and stenting of the extra- and intracranial carotid artery assessed by neurological status and diffusion weighted magnetic resonance imaging (DWI)

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Objective: Thromboembolic events may occur during or after endovascular treatment of high grade extracranial and intracranial carotid artery stenosis. The purpose of this study was to determine the frequency of thromboembolic events associated with angioplasty and stenting of the carotid artery with special regard to extra- or intracranial localization of stenosis.

Methods: Twenty consecutive patients with symptomatic intracranial (10 patients) and high grade (mean degree of stenosis: about 90%) extracranial (10 patients) internal carotid artery (ICA) stenosis treated with angioplasty and stenting at our institution were included. All procedures were performed by a single operator. All patients underwent diffusion-weighted (DW) imaging within 48 hours before and after the procedure.

Results: Extracranial carotid angioplasty and stenting (eCAS) was technically feasible and successfull without procedure-related neurological complications in all cases whereas intracranial stenting (iCAS) was not operably in four cases including one patient with a fateful course due to intraprocedural perforation of the treated intracranial artery. Concerning the restauration of the vessel diameter intracranial stenting was not as successful as eCAS., but later was more effective than ballon angioplasty alone, which was performed in 3 patients with intracranial stenosis because stenting was technically not feasible. Incidence of thrombembolic events assessed by DWI was remarkably low in all patients.

Conclusion: The risk of thromboembolic events during the endovascular treatment of symptomatic carotid artery stenosis is justifiably low for both intra- and extracranial stenosis of the ICA. However, fatal complication was observed in one attempt of stenting of an intracranial stenosis with procedure related vessel perforation.

Poster

P01

Bridging therapy in patients with occlusion of the internal carotid artery and M1–segment of middle cerebral artery: i.v. thrombolysis with alteplase, stenting of internal carotid artery, mechanical recanalisation, local and systemic application of tirofiban

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