Hemispheric Reorganization of Functional Language Networks Following Neonatal Stroke Supports Language Outcome

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Background: Neonatal Arterial Ischemic Stroke (NAIS) is a common form of paediatric stroke often affecting classical language areas. The post-stroke reorganization of functional language networks may provide insight into later-emerging language deficits and may help to identify at-risk children with NAIS. Methods: A cross-sectional study of fourteen children with left (n=8; 2M; 11.1±2.2 years) or right (n=6; 3M; 12.4±4 years) middle cerebral artery (MCA) NAIS, as well as seven neurotypical children (5M; 13.4±2.7 years), was conducted. Children listened to correct/incorrect syntactic sentences while MEG was recorded, and task-related functional connectivity in the temporal language subnetwork and support language outcome.

Discrepancy between post-treatment infarct volume and 90-day outcome in ischemic stroke: A validation study in the ESCAPE-NA1 randomized controlled trial

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Background: Some patients do poorly despite small infarcts after endovascular therapy(EVT) whilst others with large infarcts do well. We validated exploratory findings from the ESCAPE trial regarding factors associated with such discrepancies, in the ESCAPE-NA1 trial(NCT02930018). Methods: We identified “discrepant cases” with modified Rankin Scale(mRS)≥3 despite small follow-up infarct volume(FIV≤25th-percentile) on 24-hour CT/MRI or mRS≤2 despite large FIV(volume≥75th-percentile). We compared area-under-the-curve(AUC) of pre-specified logistic models containing (a)pre-treatment factors(age/cancer/vascular risk-factors) and (b)treatment-related/post-treatment factors(-serious adverse events/SAEs) in identifying small-FIV/mRS≥3 and large-FIV/mRS≤2, with stepwise regression-derived models. Results: Among 1,091 patients, 42/287(14.6%) with FIV≤7mL(25th-percentile) had mRS≥3; 65/275(23.6%) with FIV≥92mL(75th-percentile) had mRS≤2. Pre-specified pre-treatment factors(age/cancer/vascular risk-factors) were associated with FIV≤7mL/mRS≥3; stepwise models selected similar variables(similar AUCs:0.92-0.93;p=0.42). SAEs(infarct-in-new-territory/recurrent stroke/pneumonia/heart failure) were strongly associated with FIV≤7mL/mRS≥3; stepwise models also identified onset-to-needle time and hemoglobin(24-hours) as treatment-related/post-treatment factors(similar AUCs:0.92-0.94, p=0.14). Younger age was associated with FIV≥92mL/mRS≤2; stepwise models also selected diabetes absence and baseline hemoglobin(similar AUCs:0.76-0.77,p=0.82). Absence of SAEs(stroke progression/pneumonia/intracerebral hemorrhage) was strongly associated with FIV≥92mL/mRS≤2; stepwise