Diverging lesion and connectivity patterns influence early and late swallowing recovery after hemispheric stroke

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Knowledge about the recovery of oral intake after hemispheric stroke is important to guide therapeutic decisions, including the administration of enteral tube feeding and the choice of the appropriate feeding route. They aimed to determine the localization and connectivity of lesions in impaired recovery versus recovered swallowing after initially dysphagic stroke. Sixty-two acute ischemic hemispheric stroke patients with impaired oral intake were included in a prospective observational cohort study. Voxel-based lesion-symptom mapping and probabilistic tractography were used to determine the association of lesion location and connectivity with impaired recovery of oral intake ≥7 days (indication for early tube feeding) and ≥4 weeks (indication for percutaneous endoscopic gastrostomy feeding) after stroke. Two distinct patterns influencing recovery of swallowing were recognized. Firstly, impaired recovery of oral intake after ≥7 days was significantly associated with lesions of the superior corona radiata (65% of statistical map, P < 0.05). The affected fibers were connected with the thalamus, primary motor, and supplemental motor areas and the basal ganglia. Secondly, impaired recovery of oral intake after ≥4 weeks significantly correlated with lesions of the anterior insula (54% of statistical map, P < 0.05), which was connected to adjacent operculo-insular areas of deglutition. These findings indicate that early swallowing recovery is influenced by white matter lesions disrupting thalamic and corticobulbar projection fibers. Late recovery is determined by specific cortical lesions affecting association fibers. This knowledge may help clinicians to identify patients at risk of prolonged swallowing problems that would benefit from enteral tube feeding. Hum Brain Mapp, 2017. © 2017 Wiley Periodicals, Inc.

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