

Cognitive and Behavioral Disorders in Patients with Precuneal Infarcts

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Abstract : Ischemic stroke of the precuneal cortex (PC) alone is extremely rare. This study aims to evaluate the clinical, neurocognitive, and behavioural characteristics of isolated PC infarcts. We assessed neuropsychological and behavioral findings in 12 patients with isolated PC infarct among 3800 patients with ischemic stroke. To determine the most frequently affected brain locus in patients, we first overlapped the ischemic area of patients with specific cognitive disorders and patients without specific cognitive disorders. Secondly, we compared both overlap maps using the 'subtraction plot' function of MRIcroGL. Patients showed various types of cognitive disorders. All patients experienced more than one category of cognitive disorder, except for two patients with only one cognitive disorder. Lesion topographical analysis showed that damage within the anterior precuneal region might lead to consciousness disorders (25%), self-processing impairment (42%), visuospatial disorders (58%), and lesions in the posterior precuneal region caused episodic and semantic memory impairment (33%). The whole precuneus is involved in at least one body awareness disorder. The cause of the stroke was cardioembolism in 5 patients (42%), large artery disease in 3 (25%), and unknown in 4 (33%). This study showed a wide variety of neuropsychological and behavioural disorders in patients with precuneal infarct. Future studies are needed to achieve a proper definition of the function of the precuneus in relation to the extended cortical areas. Precuneal cortex region infarcts have been found to predict a source of embolism from the large arteries or heart.

Keywords : cognition, pericallosal artery, precuneal cortex, ischemic stroke

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