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Objective : To review the role of the precuneus in major depression

Methods and Material : We will review the literature involving the precuneus in the pathophysiology of depression. We will also report a recent study of our group using structural MRI and VBM analyses to assess the role of precuneus in Autobiographical Memory (AM) . Visual perspective during AM retrieval was assessed in two independent datasets of 45 and 20 healthy young adults with two different AM retrieval tasks.

Results : Precuneus, a medial part of the parietal cortex, is a central component of the default mode network. Results from our VBM study show that the precuneus volume in healthy subjects is correlated with the ability to retrieve autobiographical memories with a first-person perspective. Consistent with its role in integration of self-relevant mental simulations with past experiences and visuo-spatial processes during AM retrieval, the precuneus may subserve emotion regulation processes in healthy subjects and depressed patients. The precuneus and the default mode network show abnormal connectivity in depressed patients that may indicate abnormal self-processing in depression.

Conclusion : Abnormal activity and connectivity of the precuneus within the default mode network is associated with impairment in self-processing in depression and may be related to the tendency of depressed patients to retrieve AM using third-person perspective. Further studies are needed to evaluate if impaired function or structure of the precuneus may predict the clinical response to antidepressant treatment.