
Déjà vu induced by direct intracerebral stimulations studies

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Abstract

The phenomenon of 'déjà vu' is caused by acute disturbance of mnemonic systems of the medial temporal lobe (MTL). In epileptic patients investigated with intracerebral electrodes, déjà vu can be more readily induced by stimulation of the rhinal cortices (RCs) than the hippocampus (H). Indeed, in a previous stimulation, study we provided evidence that the probability to induce DV was maximal after stimulation of the entorhinal cortex, while reminiscences of vivid memories were obtained after stimulation of the basal temporal cortex including the perirhinal region (Bartolomei et al, Neurology. 2004;63(5):858-64). Recently, we analysed the synchronisation of intracerebral electroencephalography (EEG) signals recorded from RC, H and amygdala (A) in epileptic patients in whom déjà vu was induced by electrical stimulation (Bartolomei et al, Clin Neurophysiol. 2011 In press). In comparison with RC stimulations that did not lead to déjà vu (DV-), stimulations triggering déjà vu (DV) were associated with increased broadband EEG correlation ($p=0.01$). Changes in correlations were significantly different in the theta band for RC-A ($p=0.007$) and RC-H ($p=0.01$) and in the beta band for RC-H ($p=0.001$) interactions. These findings suggest that Déjà vu is the results of changes in synchronization process between mesial temporal structures.

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