

17.15-18.00

An fMRI Study on Cognitive Processing Before and After Recovery from Posttraumatic Vegetative State

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The persistent vegetative state (PVS) is a very common state after emerging from coma and is defined as wakefulness without awareness. There have been pioneer investigations in the functional imaging of this state using PET (Laureys, 2002, 2004 and Owen et al, 2002) and MEG (Ribary et al, 1998) measuring residual cognitive activity and processing in PVS. We have recently reported emotion processing in a Minimally Conscious state patient (Bekinschtein et al, 2004). The present study is the first that measures cognitive processing during vegetative state and after recovery. Block design fMRI was used to investigate changes in brain activity in response to simple and emotionally complex auditory stimuli in a patient during PVS and after recovery. In both scans there was activation of the primary auditory area after presentation of all auditory paradigms. However, the brain patterns activation did differ between the first and second scan particularly in the temporal and frontal lobes. To summarize: despite altered awareness the auditory cortices were activated, though with a different pattern from full awareness. Possibly the lack of integrative processing during PVS can be recovered after a higher level of awareness is attained and the neural correlates of these changes can be observed by fMRI.