

VISUAL CORTEX AND MEDIAL PARIETAL CORTEX FUNCTIONS DIFFERENCES IN HYPOXIA-INDUCED VEGETATIVE STATE PATIENTS WITH AND WITHOUT RECOVERY

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Vegetative state (VS) is a state where patients show a spontaneous wake-sleep-cycle but no evidence for awareness, for interaction with the environment, for voluntary action, and for language comprehension. The neuropathological alterations leading to this state are still not fully understood.

In this study we used SPECT, VEP and event related potentials (N100, N200, MMN, P300) to investigate the differences between a group of patients that moved into a permanent VS and another group that recovered from VS focusing exclusively on hypoxic aetiology. The two groups were matched for age, gender, duration of illness and coma remission scale at admission.

We found that the patient groups differed in global uptake of 740 MBq of ^{99m}Tc-ethylencysteine dimmer, and in presence of VEP and N100. Analysis of region specific up-take showed moreover that the recovered group had a higher perfusion in the visual cortex and in the precuneus, whereas frontal pole and more ventral parts of the brain did not differ. Relating the perfusion data to the electrophysiological recordings revealed a strong correlation of occipital and precuneal perfusions and a present VEP, but no specific results for the N100.

We conclude that intact occipital lobe functions and visual perception is a central milestone in recovery from VS, which may be related to visual and motor orientation towards stimuli and therefore for voluntary actions in general.