P01-433

HEMISPHERIC DIFFERENCES IN FRONTAL THETA-BAND POWER DISCRIMINATE BETWEEN STIMULUS- VERSUS MEMORY-DRIVEN SACCADIC EYE MOVEMENT

B. Velasques[1,2], S. Machado[1], M. Cunha[1], J.L. Santos[1], J. Bittencourt[1], H. Budde[3], L.F. Basile[4,5], M. Cagy[6], R. Piedade[1], A.T. Sack[7], E. Cheniaux[1], A.E. Nardi[1], P. Ribeiro[1]
[1]Federal University of Rio de Janeiro, [2]Institute of Applied Neuroscience, Rio de Janeiro, Brazil, [3]Universität zu Berlin, Humboldt, Germany, [4]University of São Paulo Medical School, [5]UMESP, São Paulo, [6]Federal Fluminense University, Rio de Janeiro, Brazil, [7]Maastricht University, Maastricht, Netherlands Antilles

Introduction: Although several electrophysiological studies have demonstrated the role of theta band during the execution of different visuospatial attention tasks, this study is the first to directly investigate the role of theta power during the planning, execution and cognitive control of SEM.
Objective: Saccadic eye movements (SEMs) represent the first stage of visual sensorimotor integration and are relevant for the visuospatial attention. The current study aims to address this issue by investigating absolute theta power over the frontal cortex during the execution of stimulus- and memory-driven SEMs.
Methods: 12 healthy volunteers (3 male; mean age: 26.25), performed two tasks involving different conditions in the planning, execution and cognitive control of SEMs while their brain activity pattern is recorded using quantitative electroencephalography.
Results: We found an interaction between SEM condition (memory- vs stimulus-driven) and electrode (F3, F4, Fz), and a main effect of time point and electrode. Our key finding revealed that the stimulus presentation induces different patterns over frontal theta power increase between the left and right hemisphere.
Conclusions: We conclude that right and left frontal regions are an important factor to discriminate between memory- versus stimulus-driven SEMs, and speculate on their role for different levels within the visuospatial attention.

https://doi.org/10.1016/S0924-9338(11)72144-7 Published online by Cambridge University Press