AS19-01 - THE STUDY OF SOCIAL COGNITION WITH NEUROIMAGING METHODS

E.Brunet-Gouet, D.Vistoli, C.Passerieux

Service de Psychiatrie Adulte, ECIPSY EA4047, Centre Hospitalier de Versailles, Université Versailles Saint Quentin, Versailles, France

Since the nineties, the study of social cognition has benefited from advances in neuroimaging that allowed to cartography the "social brain". The available literature reports results of PET or fMRI experiments that globally agree on the topography of the cortical regions involved in understanding/representing other's persons. Among these regions, medial prefrontal structures, the sensorimotor cortex, the temporoparietal cortex including the superior temporal sulcus have been implicated in different aspects of social cognition. Brain cartography was successful in separating networks that detect/process social cues from those that maintain shared representations (mirror system), or process inferences about others' mental states (mentalization or theory of mind system). Although the neural bases of these systems are distinguished in many experiments, their mutual relations are yet hypothetical. Moreover, their main cognitive characteristics, such as their explicit/implicit or automatic/controlled nature, are mostly unknown. The use of cognitive electrophysiology (EEG and MEG) appears promising as a way to address these issues. Recent works based on these techniques demonstrate that theory of mind inferences are related with magnetic activation of the temporo-parietal junction as soon as 300 to 500 milliseconds post-stimuli when comic-strips with intentional characters are presented to subjects. Furthermore, these activations are modulated by top-down influences such as prior instructions urging the subjects to focus on the characters' mental states. These results will be discussed with respect to their impact on schizophrenia research.