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Mild cognitive impairment as a high risk factor for progression to Alzheimer's disease: An fMRI study

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The major current research on aging and dementia is focused on diagnostics of the cognitive changes of normal aging and Alzheimer's disease (AD) and these changes are known as Mild Cognitive Impairment (MCI). In this study, we applied medical technology and this research has come so far that in recent years it is possible for imaging scans to find out abnormalities and diagnose diseases. Functional Magnetic Resonance Imaging (fMRI) is a useful tool to investigate the modifications in functional connectivity and also allows the evaluation of brain changes that occurs in the progression from healthy aging to MCI and AD. Using fMRI, many studies have extensively investigated functioning and anatomical correlates of the default mode network (DMN) including the Medial Prefrontal Cortex (MPFC), the Posterior Cingulate Cortex (PCC), the Inferior Parietal Lobe (IPL) and the Hippocampus (HP). More importantly, with functional Magnetic Resonance Imaging (fMRI), we investigated resting state network (RSN) activities and this resting state (Rs) fMRI data were analyzed by using Independent Component Analysis (ICA). The aim of this study was to identify the modifications of brain functional connectivity in MCI patients and to show how they can be progressed to AD. As there are no treatments recommended for MCI currently, Mild Cognitive Impairment is becoming a very important subject for researchers and deserves more recognition and further study, in order to increase the ability to recognize earlier symptoms of Alzheimer's disease.

Biography

Hichem Metmer received his Bachelor's degree in Computer Science and Engineering from the University of Batna (Algeria) in 2013. Actually, he is a research student in the Department of Computer Science and Engineering, Nanjing University of Science and Technology, NUST (China). His research interests are in: Brain imaging analysis, pattern recognition and image processing.

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