

Mild Auditory Perception and Cognitive Impairment in mid-Trimester Pregnancy

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Abstract : To assess auditory perception and cognitive function during pregnancy is necessary as the pregnant women need extra effort for attention mainly for their executive function to maintain their quality of life. This study aimed to investigate neural correlates of cognitive and behavioral processing during mid trimester pregnancy. Event-Related Potentials (ERPs) were studied by using 128-sensor net and PAS or COWA (controlled Oral Word Association), WCST (Wisconsin Card Sorting Test), RAVLTIM (Rey Auditory Verbal and Learning Test: immediate or interference recall, delayed recall (RAVLT DR) and total score (RAVLT TS) were tested for neuropsychology assessment. In total 18 subjects were recruited (n= 9 in each group; control and pregnant group). All participants of the pregnant group were within 16-27 (mid trimester) weeks gestation. Age and education matched control healthy subjects were recruited in the control group. Participants were given a standardized test of auditory cognitive function as auditory oddball paradigm during ERP study. In this paradigm, two different auditory stimuli (standard and target stimuli) were used where subjects counted silently only target stimuli with giving attention by ignoring standard stimuli. Mean differences between target and standard stimuli were compared across groups. N100 (auditory sensory ERP component) and P300 (auditory cognitive ERP component) were recorded at T3, T4, T5, T6, Cz and Pz electrode sites. An equal number of electrodes showed non-significantly shorter amplitude of N100 component (except significantly shorter at T3, P= 0.05) and non-significant longer latencies (except significantly longer latency at T5, P= 0.008) of N100 component in pregnant group comparing control. In case of P300 component, maximum electrode sites showed non-significantly higher amplitudes and equal number of sites showed non-significant shorter latencies in pregnant group comparing control. Neuropsychology results revealed the non-significant higher score of PAS, lower score of WCST, lower score of RAVLTIM and RAVLTDR in pregnant group comparing control. The results of N100 component and RAVLT scores concluded that auditory perception is mildly impaired and P300 component proved very mild cognitive dysfunction with good executive functions in second trimester of pregnancy.

Keywords : auditory perception, pregnancy, stimuli, trimester

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