ABSTRACT

The aim and objective of this thesis is to evolve the techniques in study of the limitations concerned with investigation, interpretation and diagnosis of the EEG, EP and BAEP signals. During present work more than one hundred reports are reviewed. Eventhough BAEP technique has got an important role in investigation due to most of neurological and audiological abnormalities, it still carrying certain limitation so that can significantly effect on resulted outputs which may affect on the interpretation of the waveform with minor error. BAEP waveform components mostly containing I-V waves with different peak latency, amplitude and frequency arising from the different portion of the auditory pathway. Each wave of I, III and V have clinical significant in almost all the diseases. In most of the previous reports Cz at the vertex is used to record BAEP waveform from the scarp of all subjects whereas each peak separately may have specific site of potential generation at the scalp. In this regard ten different locations over the head of seven normal subjects are selected to define the characteristics of each peak. Age and sex are the factors can significantly change the characteristics of BAEP waveform components. There are reports shown that by increasing the age, absolute peak latency and interpeak latency are also increased and absolute peak latency in females were shorter than males. But the results on absolute peak latency and Interpeak latency changes on increasing the age in different age group in either sex were limited to one or two reports and that was only on wave
V of BAEP waveform components and at ipsilateral to the stimulated ear. Study on BAEP waveform components characteristics at ipsilateral and contralateral ears corresponds to different age group and sex provided a wide information about the changes of absolute peak latency and interpeak latency in each BAEP wave according to increasing the age in sex differences at both ears. Again there are reports shown that changes in stimulus intensity and stimulus repetition rate is changed the absolute peak latency and interpeak latency of each BAEP waveform components but these change in accordance with increasing the age and sex difference were not the objective of any previous reviewed papers. As stimulus rate and stimulus intensity at different range are proven to be important in identification of defects in brainstem auditory pathway. Effect of age and sex on different BAEP waveform components according to increasing the stimulus intensity and repetition rates was another objective of this work and clearly all changes with absolute peak latencies and interpeak latencies are defined. BAEP waveform frequencies in many cases can assist investigators to increase the interpretation and diagnosis of BAEPs more precisely when in routine BAEP absolute peak latency measurements are uncertain. In reviewing the recent papers it was clearly shown that, still frequencies related to each BAEP peak are not defined. In present work various subjects in different age and sex are selected and the frequencies related to each BAEP wave are studied. Age and sex doesnot shown any correlation with frequencies in each peak and all were with in the range of 100 to 3000 Hz. Brain Electrical Activity Mapping (BEAM) is a technique recently become an important tool in identification and diagnosis of diseases
and disorders concerned with central nervous system. In this technique the colour coded image are the measure of corresponding voltage charges in each location according to the number of electrode used. All previous report reviewed on BEAM technique were based on specific application/location whereas in the present work information about colour coded changes correspond with amplitude values in all locations are presented. EEG and EP datas recorded from the different location at various subjects are presented on this technique and the corresponding colour coded image in each case are studied. The similar technique is used to represent the BAEP waveform components amplitude datas recorded at ipsilateral and contralateral ears on map and study the colour coded changes according to the voltage levels at each peak.