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**Clinical Utility of Brainstem Auditory Evoked Potentials (BAEP) as Diagnostic and Prognostic Neurophysiological Markers in Patients with Concussion****Diana Tsakova**

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**Introduction:** The standard approach in patients with concussion includes neurological/neurosurgical examination and neuroimaging (CT/MRI). Despite the normal results from these examinations, some complaints often persist for different period of time and disturb their quality of life. The aim of this study is to investigate changes of BAEP as diagnostic and prognostic neurophysiological markers in patients with concussion.

**Method:** Twenty-three patients (age range 18-44) with concussion were included in the study. Control group includes 35 subjects. In all 23 patients CT/MRI was conducted to exclude more severe TBI. In all patients were conducted BAEP in the first month after injury. In 10 patients a BAEP follow-up was carried out on the 3<sup>rd</sup> or 6<sup>th</sup> month after the trauma.

**Results:** The abnormal rate of BAEP for patients with concussion was 86.95%, indicating dysfunction of the brainstem in those patients. There was a statistically significant difference between the abnormal rate of patients and that of healthy persons. In the first month after the trauma 20 patients had abnormalities: delayed peak latencies, abnormal prolongation of interpeak intervals, interaural differences. 16 of them had more than one type of abnormalities. Three patients had normal BAEP. In control BAEP in 10 patients the abnormalities persist. (Fig.1).

**Conclusions:**

- BAEP can be applied as a diagnostic method in patients with concussion for objectifying some functional disturbances in cases of normal CT/MRI.
- Conducting control BAEP (3, 6 months) has an important role in monitoring the dynamics of pathological process.
- Persistent abnormalities in BAEP can be used as diagnostic and prognostic neurophysiological markers for establishment of incomplete recovery – for temporary disabilities and legal claims for compensation.
- In patients with MTBI with normal CT/MRI it is recommended expansion of the diagnostic algorithm with BAEP as objective, sensitive and highly informative indicator of brainstem disturbances.

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