Diagnostic evoked potentials in a quadriplegic child after an unusual hyperflexion of cervical high spines combined with head injury

Sir,

We are reporting evoked potentials recorded from a child who survived the initial period of trauma and regained his consciousness but sustained permanent quadriplegic lesion due to complete separation of the spinal cord at the level of C2 and C3.

A 6 year old male child was admitted to the surgical intensive care unit at King Khalid University Hospital on 2/11/1417 H, after a road traffic accident. On arrival to the emergency room, he was unconscious, apneic and in cardiac arrest. Pupils were fixed dilated with no reflexes. He had right parieto-occipital hematoma. He was intubated with caution, resuscitated and the cardiovascular system resumed activity. The patient was transferred to ICU for further stabilization ventilation and skull traction. The patient was hyperventilated, sedated and his parameters were as follows: P96 b.min⁻¹ BP 90/50 mmHg Ventilated with 15 ml./kg.bw with saturation of 100%. Blood gases were satisfactory with Fio₂ 0.4. Total body scans demonstrated fracture of the posterior element of C1 with C1-C2 subluxation evidenced by masked widening of C1-C2 interpinous space. A focal flexion deformity at C2-C3 was indicating flexion injury. On day 3 of intensive care, the patient showed spontaneous eye opening, but he was not following commands. He had brisk superior reflexes and up-going planter reflexes. On day 13 Tracheotomy was carried out, by that time, the patient had spontaneous eye opening, no response and seemed unconscious, no respiratory effort on testing, spinal withdrawal reflexes in left lower limb. On day 17, cervical fixation and stabilization (at C2-C3 the site of dislocation) was carried out by the neurosurgeon. During operation, the spinal cord was observed and was found to be grossly damaged. On day 77, the patient was able to show grimaces of the face recognizing his family, smiling, or crying, but paralyzed from the neck downward. On day 120, the first Evoked Potential studies were carried out. On day 140, the second Evoked Potential studies were repeated.

On both occasions, evoked potentials were recorded using ER94a/sensor MEDELEC machine Vickers UK. The body temperature and blood gases were within normal range. Somatosensory evoked potentials SSEP for Median nerve Mn and Posterior Tibial nerve PTn. Findings were compatible with lesion above CV₂ segment of the spinal cord. Somatosensory evoked potential SSEP; Median Nerve; - only Erb’s potentials and CV₂ potentials were obtained - both are within normal limits. No cervical potential could be obtained. Posterior Tibial nerve PTn: - potential from popletial fossa and L₁ were recorded for both sides. No potential could be obtained from C2-C4 electrodes.

In conclusion, SSEP findings are compatible with lesion above CV₂, (Fig. 1).

Hassan Bakhamees
Mohammed M. Kabiraj
Mohamad S. Takrouni
King Saud University
Riyadh
Kingdom of Saudi Arabia

Jaffar Al-Shweikhat
Abdelazeem A. El-Dawlatly
King Khalid University Hospital
Riyadh 11461
Kingdom of Saudi Arabia