Sleep & RLS

P133 Spinal cord monitoring: the term of "false positive" redefined

A. Daya[1], P. Webb[1], S. Graham[2], C. G. Greenough[3], S. L. Papastefanou[3]
[1]*Regional Medical Physics Department. James Cook University Hospital, Middlesbrough;* [2]*Department of Anaesthesia. James Cook University Hospital, Middlesbrough;* [3]*Orthopaedic Surgery. James Cook University Hospital, Middlesbrough*

Purpose: Somatosensory evoked potentials (SSEP) are routinely used intra-operatively to monitor integrity of neural pathways during spinal surgery. The aim of SSEP monitoring is the early identification of surgically induced neurophysiological changes and to allow for their prompt correction, thus reducing the risk of postoperative neurological sequelae.

Methods: In this retrospective study we examine 137 cases of corrective spinal deformities surgery over 5 years. A decrease of 50% in amplitude or an increase of 10% in latency of the SSEP waveform was used as a threshold for intervention. This incidence is referred to as "false positive" if the event is not followed by neurological deficit. In this case it is presumed that either the change was not sufficient for the spinal cord to develop a deficit or that the neurological damage has been reversed through intervention. There is no consistent way to differentiate between the two.

Results: A total of 46 separate incidences of an abnormal SSEP were reported, with surgeons intervening in 32 cases. No postoperative deficit was observed despite the traces of 11 patients in the non-intervened group not returning to acceptable levels. In 14 cases of the intervened group a wakeup test was done and despite all 14 patients having had a successful wakeup test, their SSEP traces remained at below acceptable levels for the rest of the surgery.

Conclusion: None of the 46 patients who had an abnormal SSEP had any post operative deficit. The incidence of false positives (33.6%) was rather high and our experience indicates that this term needs redefinition for intra-operative use. However, the analysis of the cause indicates that while a significant percentage may be attributed to known risks such as reduced segmental cord blood flow, cord distraction, concentration of inhalation anaesthetic, there is a number of unexplained incidents.

Sleep & autonomic nervous system

P134 Decomposition of skin sympatic response (SSR) into sympatic and parasympatic components: usage in neurology practice

V.V. Gnezditsky[1], E.E. Koshurnikova[1], O.S. Korepina[1], V.A. Duhanin[2]
[1]*Neurology, Moscow, Russia;* [2]*Faculty of Medical informatic and cybernetic, Moscow, Russia*

On the basis of physiological model about two components system of generators SSR the mathematical model of decomposition SSR on parasympatic and sympatic components is offered. Two approaches to model initial SSR are analyzed and optimum, giving exacter reproduction of the native curve SSR is chosen. On the basis of the method of decomposition a number of new parameters allowing more unequivocally is offered to describe kinetic of each component in a total signal SSR (latency, amplitude, duration of each component). The new parameters are compared to parameters received on original curve of SSR.

The offered approach is used at the SSR analysis at 32 healthy subjects and at 56 patients with vegetative pathology: vegetative paroxysm of sympato-adrenal nature, vago-insular and mixed type. On modeling curves easier estimate such parameters as quality of regulation also can be more evidently appreciated, the maximal amplitude of the responses, area of each component, their ratio that also improves interpretation of these responses in normal subjects and patients with vegetative pathology.

P135 RR interval variation and the sympathetic skin response in the assessment of autonomic function in Behçet's disease

Hizir Ulvi, Recep Aygül, Recep Demir
Atatürk University, Medical Faculty, Department of Neurology, Erzurum*

Purpose: Behçet's disease (BD) is a multi-systemic, recurrent inflammatory disorder that may involve central nervous system (CNS). The aim of our study was to evaluate possible autonomic nervous system (ANS) dysfunction in patients with Behçet's disease

Methods and Results: We studied 26 patients with Behçet's disease; 15 female and 11 male; the mean age was 34,69±12,44 years and 33 age-matched healthy subjects (control); 19 female and 14 male; the mean age was 39,12±13.11 years. All subjects were studied using an electromyogram (EMG) equipment (Keypoint, Dantec, Denmark). The mean values of RRIV in BD during at rest (mean RRIV in patients, 20,9±8,57 vs controls, 21,65±9.09 [$p<0.05$]) and during deep breathing (mean RRIV in patients, 22.89±23.97 vs controls, 30.70±15.99% [$p<0.005$]) was significantly lower compared with the controls. The mean latency of SSR in BD (mean SSR latency in patients, 1,43±1,48 milliseconds vs controls, 1.30±0.41 milliseconds [$p<0.05$]) was significantly prolonged compared with the controls. The mean amplitude of SSR in BD (mean SSR amplitude in patients, 0.54±0.57 μV vs controls, 1.02±0.56 μV [$p>0.05$]) was smaller compared with the controls.

Conclusion: We conclude that SSR and RR interval variation, both of which can easily be performed in the electromyography laboratory, are helpful in combination in the assessment of autonomic function in BD.

P136 Skin sympathetic response is enhanced by spontaneous limb movements

Chen Jen-Tse[1], Lin Chia-Yi[1], Wu Zin-An[1], Lin Yung-Yang[1], Liao Kwong-Kum[1]
[1]*National Yang-Ming University, School of Medicine, Taipei, Taiwan;* [2]*Taipei Veterans General Hospital, Taipei, Taiwan;* [3]*Cathay General Hospital, Taipei, Taiwan*

Purpose: To test if the voluntary muscle movement of different limbs can affect the skin sympathetic response (SSR).

Method: SSR was recorded in the right palm of 12 normal subjects. The latency and amplitude were measured. SSR was recorded in different conditions: The subject kept rest. Then, the subjects were asked to (1) grasp the left hand, (2) clinch the jaw, and (3) dorsiflex the right foot.

Result: The rest SSR latency and amplitude were: 1.65±0.29 ms and 3.94±1.23. The SSR latency was in (1): 1.39±0.22 ms, (2): 1.31±0.26 ms, (3): 1.47±0.25 ms. The SSR amplitude was in (1): 5.99±2.28mV, (2): 8.24±2.65mV, (3)5.38±1.82mV. There is a significant difference between different limb movement and the rest condition both in latency (1, 2: $p<0.001$, 3: $P=0.0013$) and amplitude (1, 2: $p<0.001$, 3: $p=0.0024$).

Conclusion: SSR was significantly affected by the voluntary muscle movement in different limbs. This indicates that the internal command could enhance the expression of sympathetic activity.

P137 Determination of changes in vagal reflexes during formation of vegetative dystonia syndrom in women with preeclampsia

Ludmila Kyryllova, Alexandr Shevchenko
[1]*Institute of Pediatrics, Obstetrics and Gynecology Academy of Medical Sciences of Ukraine, Department of Children Psychoneurology*

Purpose: To increase efficiency of revealing of changes in vegetative reflexes during the course and treatment of preeclampsia, taking into account studies of nervus vagus system at various levels (face, abdominal cavity).

Methods: We carried out examination of 50 women with preeclampsia (diagnosed as "medium preeclampsia"-23 women, "severe preeclampsia"-27 women). We determined the following vagal reflexes: Dagnini-Aschner (oculocardiac) reflex, orbital reflex, celiac-plexus reflex (Thoma-Rue reflex).

Results: We revealed that the more severe was preeclampsia, the more intensive were reflexes (strongly positive- (++), and there were also distorted