ANAESTHETICAL MONITORING OF HYPNOSIS IN CHILDREN

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ABSTRACT
The need to control the deepness of the anaesthesia becomes more and more important. The level of hypnosis given by volatile or intravenous anaesthetic agents can reach a dangerous point of too much central depression, or provoke awareness, that can be a source of unpleasant medical and legal consequences. EEG and derivates (bispectral index, entropy, spectral analysis) seem to offer feedback of the hypnotic agents’ action.

The assessment of hypnosis helps to adjust the depth of anesthesia and avoids “awareness” situations. This kind of control is so far less used in children.

EEG and derivates (bispectral index, entropy, spectral analysis) seem to offer feedback of the hypnotic agents’ action.

EEG is a complex sinusoid with a frequency spectrum of 0.3 – 70 Hz. In the waking adult the medium (8-13 Hz) and fast (14-30 Hz) frequencies predominate. EEG tracing varies with age reflecting cerebral maturation processes. In newborns slow oscillations prevail, then the dominant frequency gradually increases with age, while the amplitude of the oscillations decrease. Over 1 year, EEG and its reaction caused by the general anesthetics look the same as in adults.

The BIS technology includes: bispectral analysis, algorithm, bispectral index.
atret. Incidence of awareness in children is as high as 2.7% (Isabelle Constant), 0.8% (Davidson).

BIS is relevant as an indicator of hypnosis for propofol, midazolam, isoflurane, alone or mixed with analgesic drugs. Ketamine, N2O, opiates do not depress EEG, so that they do not proportionately lower BIS. Hypothermia, hypocapnia, hypoperfusion, neuroleptic drugs reduce frequencies of EEG and alter BIS. Since opiates do not significantly modify BIS, SE, RE, these 3 do not predict the response to pain.

In the intensive care unit, EEG and derivates are useful in the control of sedation, in barbiturate coma, for the comfort of neuromuscular blocked patients, some procedures for neurologic evaluation, in detection of zones of cerebral isch-emia.

<table>
<thead>
<tr>
<th>Age(years)</th>
<th>MAC sevoflurane (O₂ 100%)</th>
<th>End Tidal (Et) minimal hypnotic sevoflurane (O₂ 100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 3</td>
<td>3.3 – 2.6 %</td>
<td>≥ 2.4 %</td>
</tr>
<tr>
<td>3- 5</td>
<td>2.5 %</td>
<td>2 %</td>
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</tbody>
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REFERENCES