

Opioid Requirement at Different Levels of Hypnotic Anesthetic Agent

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Introduction: Over the years many papers have been published which reviewed EEG and neuroscience topics and suggested that they may be important to understanding anesthesia. But so far, few clinicians have used this information to change the way they practice. EEG based monitors were developed empirically and are alleged to measure the “depth” of anesthesia which is a clinical rather than a neuroscience based concept. It is debatable whether or not these monitors have changed anesthesia practice.

A potential clinical advantage of a neuroscience based monitor would be to enable a reduction of the level of the hypnotic anesthetic agent (halogenated inhalational agent or propofol) below the levels commonly used without the benefit of such a monitor. This can only be done routinely if the clinician knows how much analgesia is needed to prevent response to surgical stimulation as the inhaled agent or propofol is reduced.

Proposed theory: Tracking the alpha peak and theta trough of the EEG spectrum could be used to divide the well known relationship between the hypnotic and analgesic agents into three zone. Zone 2 is the most efficient section of the curve and is at the level of maximum alpha peak. Zone 3 requires high levels of analgesic agent and is when both the alpha peak and theta trough lose power rapidly with small changes in the primary anesthetic agent. The clinician would try to achieve zone 2 and maintain a constant and moderate level of opiate.

