

Re: “[Do You Really Need a Brain Monitor?](#)” (November 2005, page 57).

Lost in the shuffle about awareness was the issue of adequate hypnosis (45-60 for GA, 60-75 for MAC) and adequate analgesia.

Monitoring level of hypnosis with a BIS helps avoid overdosing patients (BIS <45, for example), every hour of which is associated with a 20 percent increase in one-year mortality in non-cardiac cases, according to Monk, et al.¹ Faster emergence must take a back seat to safer administration of anesthesia. Routinely overdosing with short-acting agents for fear of under-medicating is simply no longer an acceptable practice.

I've defined anesthesia as the sum of hypnosis (measured by BIS and other level of consciousness monitors) and analgesia (not currently measurable with current monitors). For instance, adequate analgesia results in adequate muscle relaxation for the imbrication of the rectus sheaths in abdominoplasties and many other minimally invasive surgeries. Management of anesthesia is greatly facilitated by being able to demonstrate adequate hypnosis during either GA or MAC. A binary system of choice then evolves. In the presence of adequate hypnosis, you may infer that patient movement is caused by inadequate analgesia. Patient movement is predicted by a spike in the EMG (trend EMG as a secondary trace from the advanced screen setup). You can then increase the hypnosis while simultaneously encouraging the surgeon to inject additional local analgesia, when feasible. By following this paradigm of patient management, you can avoid emetogenic opioids both intra- and post-operatively for pain management.²

BIS not only measures patients' level of consciousness (especially with propofol or inhalational vapors), but also it contributes to significantly better intra- and post-operative pain management. Improved patient safety, satisfaction and throughput in any facility — hospital outpatient, ASC or office-based model — will be the outcome.

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References

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2. Friedberg BL: Nonopioid analgesia improves outcomes. *Anesthesiol* 93:582, 2000.