Correspondence

Electroencephalographic Effects of Sedative Hypnotics

To the Editor—We read with interest the recent report by Drummond et al. We have conducted volunteer studies examining the electroencephalographic (EEG) effects of midazolam, thiopental, and propofol and their relation to clinical effects in sedative doses. All three agents appear to produce similar cognitive and EEG effects. All three agents produce increases in high-frequency EEG beta (13–30 Hz) activity, which, by and large, are statistically identical at these dose ranges. All of these effects were sedated but able to perform moderately complex cognitive tasks (e.g., memorizing word lists). Propofol clearly causes high-frequency EEG beta activity during sedation, and the effect appears to be related to the serum concentration.

The phenomenon is not a transient effect, and beta activity appears to be maintained as long as the serum concentration remains constant.

In a separate report, Kalkman et al. show that the electrophysiologic effects of propofol appear to be prolonged in relation to the clinical sedative effects of the drug. We have noted a similar discrepancy with midazolam at sedative concentrations on long latency evoked potentials (P500). Preliminary analysis of our data during propofol sedation show a similar effect, with depression of P500 amplitude lasting more than 2.5 hrs after the termination of the infusion.

With the introduction of new surgical technology, more anesthetic practice will be targeted toward the production of a satisfactory state.
of sedation, and usually amnesia. The apparent dissociation of electrophysiologic effects from clinical signs is an interesting observation that deserves more thorough study. Further investigation into the effects of anesthetics at sedative concentrations should be encouraged.

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REFERENCES


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