JOURNAL OF
CONTEMPORARY MEDICINE

DOI:10.16899/jcm.1514264
J Contemp Med 2025;15(1):56-57

Letter to the Editor/ Editöre Mektup

Sharing the Same Site with Neurosurgeons: The Bispectral Index Sensor

Beyin Cerrahları ile Aynı Alanı Paylaşmak: Bispektral İndeks Sensörü

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Dear Editor,

Electroencephalographic monitoring with the bispectral index (BIS) is a method for assessing level of consciousness and depth of anesthesia. Incidence of accidental awareness during anesthesia can be prevented with BIS monitoring. BIS can provide optimal anesthetic consumption, reduced time to extubation, early recovery from anesthesia and discharge from both the operating room and post anesthetic care unit, low incidence of nause and vomiting, cognitive impairment and delirium, as well.[1]

The manufacturer's recommended placement of BIS sensor for monitoring depth of anesthesia usually conflicts with the surgical site. Neurosurgeons and anesthesiologists have to share the same anatomic area, where BIS sensor is placed between the forehead and eyebrows. Wet clothes due to blood and irrigation fluids in the surgical site, mechanical and magnetic interference of surgical equipments like mayfield pins placement, neuro-navigation and electrocautery prevent the proper use of BIS sensor. There is a decrease and interruption in signal quality. Even drapping may be ineffective for protecting the sensor.

Alternative placements of BIS sensor have been applied and the correlation between the frontal placement have been evaluated. Nasal dorsum and under the eye is an appropriate site for monitoring. Nelson et al., determined slightly more variability when compared with the standard positioning, but this variability was not found clinically significant.[2] It has been shown that an alternative position across the mandible can be availably used. Shiraishi et al. found a good correlation between frontal and occipital BIS placements. Post auricular sensor placement was also found as a practical alternative.[3] Overall, a cross-sectional study was conducted comparing BIS scores derived from frontal and supralabial electrode placement. Supralabial placement was found as an alternative place.[4] On the other hand, false elevation of BIS may be possible due to electromyographic (EMG) activity, use of surgical devices, and electrocardiogram (ECG) artifacts.[5]

According to the literature, we mostly use nasal dorsum placement when the surgical skin insicion is close to the forehead (**Figure 1**).

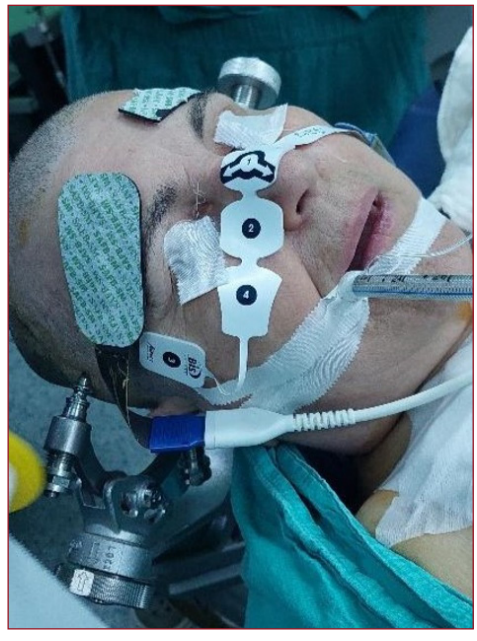

Figure 1. Placement of the bispectral index sensor on the nasal dorsum

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Received *(Geliş Tarihi)*: 10.07.2024 **Accepted *(Kabul Tarihi)*:** 31.01.2025

This provides better surgical satisfaction by staying away from the surgical field. The reliability of the sensor may decrease when the sensor is far from the standart placement site. So, causion should be taken due to interferences that may affect BIS scores.

In summary, an alternative positioning of BIS can be easily used without a clinically significant variability. Anaesthesiologists should consider different placements when using BIS monitoring during neurosurgical procedures especially close to frontal site.

Keywords: Bispectral index, neurosurgeons, alternative placement, nasal dorsum

ETHICAL DECLARATIONS

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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