



# The Relationship Between Awake Bispectral Index and Recall of Travel to the Operating Room



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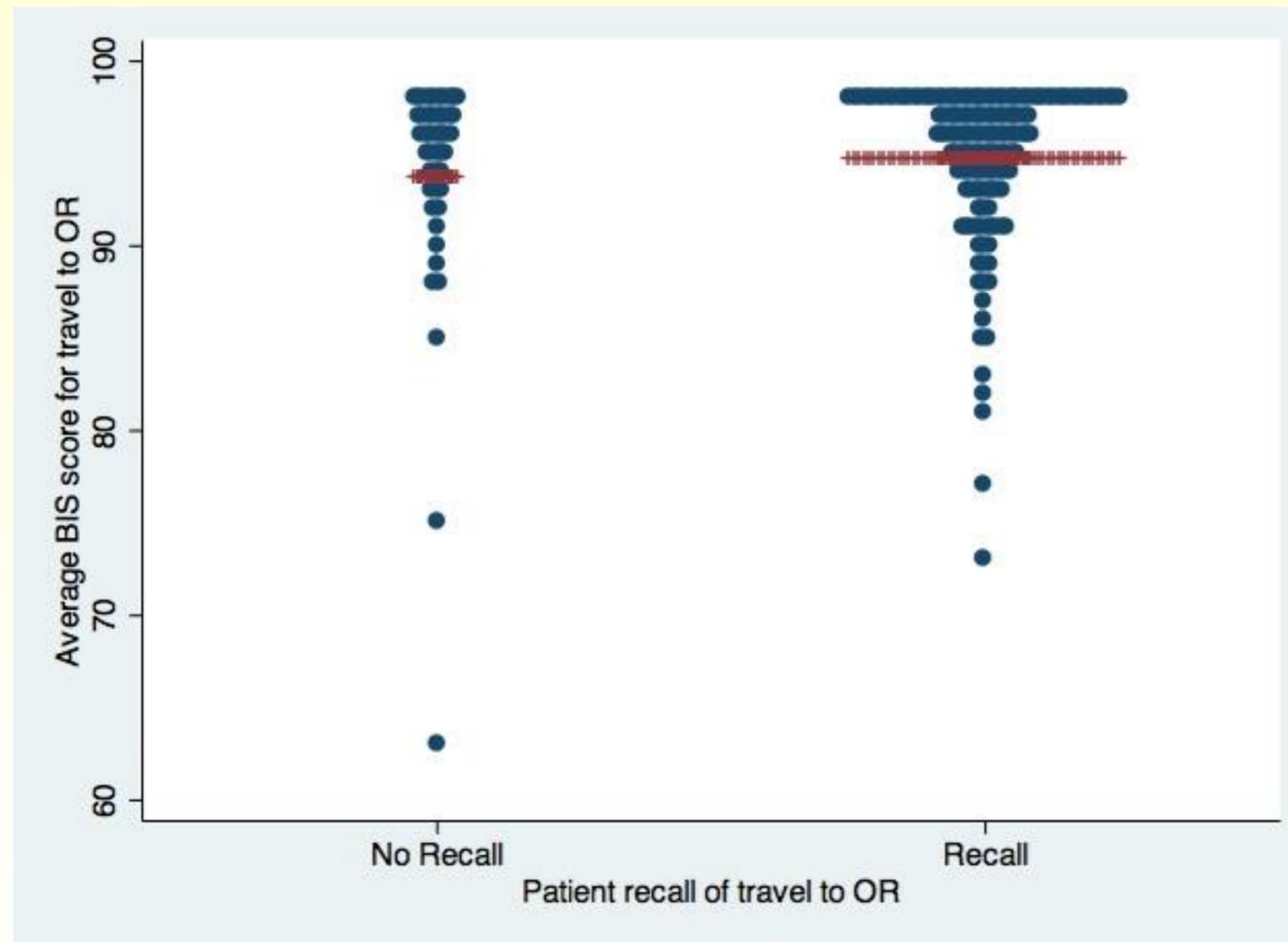
## Background

Awareness with recall (AWR) is an uncommon but potentially dangerous occurrence in anesthetic practice.<sup>1</sup> To guard against instances of AWR, clinicians may use awareness monitors like the BIS Vista (Covidien), which processes EEG information and outputs a single dimensionless integer that indicates the patient's level of wakefulness. The BIS monitor was initially shown to be more effective than other monitoring techniques in preventing AWR,<sup>2</sup> but more recent studies have called this into question.<sup>3</sup> The present study was designed to assess if BIS values are correlated with memory formation, a fundamental component of AWR that can be studied outside the operating room.

## Methods

258 subjects were enrolled in the study. All were adult surgical patients who received preoperative midazolam and general anesthesia. Each subject was fitted with a BIS Vista monitor in the preoperative area. A BIS reading was recorded during travel to the operating room, and all enrolled subjects were able to communicate with the researchers during this time. On the day following surgery, subjects were asked if they recalled traveling to the OR. A Wilcoxon rank-sum test was used to analyze the relationship between subject recall of OR travel and corresponding BIS score.

## BIS score during travel to the OR Vs. Patient recall of travel to the OR



Each dot represents a subject's average BIS score during travel to the OR. Subjects who recalled travel to the OR either immediately post-op or at 24 hours post-op were classified as having recalled (shown on right). The mean BIS scores for the two groups (Recall = 94.6, No Recall = 93.6) are shown in red. The difference is not statistically or clinically significant.

## Results

77% of subjects reported a memory of travel to the operating room. The mean BIS score for these subjects was 94.6. The mean score for those who did not remember was 93.6. This difference was not found to be statistically significant.

## Discussion

It appears to be common for patients to forget their trip to the operating room. This effect could be due to midazolam, or perhaps to a retrograde effect of one or more drugs given in the OR. Additionally, our results suggest that BIS monitors cannot help clinicians to ascertain if an awake patient is actively forming memories of the transit from the preoperative holding area to the operating room.

## References

1. *Anesth Analg* 2004; 99(3):833-9
2. *NEJM* 2008; 358(11):1097-108
3. *NEJM* 2011; 365(7):591-600