

Comparison of Patient State Index (PSI) and Bispectral Index (BSI) Response to Propofol and Desflurane during Ambulatory Surgery.

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Introduction

Both the physical state analyzer (PSA) and the Bispectral Index (BIS) monitors have been utilized to improve the titration of intravenous (IV) and volatile anesthetics, thereby facilitating the early recovery from general anesthesia (1,2). This study was designed to compare the use of the two cerebral monitors during a standardized general anesthetic technique.

Methods

Nineteen patients undergoing general anesthesia were monitored simultaneously using the PSA (with the PSArray2) and BIS (with the XP platform) monitors. All patients were premedicated with midazolam (2 mg IV) and anesthesia was induced with propofol 2 mg/ kg IV. Anesthesia was initially maintained with desflurane 3% and nitrous oxide 60% in oxygen. During surgery, the patients were administered bolus doses of propofol (20 mg IV), or the inspired concentration of desflurane was increased or decreased by 2%, and the changes in PSA and BIS values were subsequently recorded at 1, 3 and 5 min intervals. Data were analyzed using Student's t-test for continuous variables, paired t-test for intragroup differences, and Chisquare test for categorical data. (a, $p < 0.05$ vs before administration of propofol bolus or desflurane).

Results

Both groups were similar with respect to their demographic characteristics. The PSA monitor appeared to be comparable to the BIS with respect to changes after bolus doses of propofol or alterations in the desflurane concentration (Table).

Discussion

The PSA monitor appears to be a viable alternative to the BIS monitor for titrating both intravenous (propofol) and volatile (desflurane) anesthetics during surgery.

(1) *Anesthesiology*. 2002;97:82-9; (2) *Anesth Analg*. 2002;95:1669-74

	Before propofol bolus	1 min after bolus	3min after bolus	5min after bolus	Before desflurane increased	1 min after change	3min after change	5min after change	Before desflurane decreased	1 min after decreased	3min after decreased	5min after decreased
BIS	65±14	59±9a	51±11a	49±10a	57±11	54±10	54±10	48±10a	40±7	44±7	46±10a	49±10a
PSA	56±14	51±10	42±9a	41±9a	55±12	51±11	47±10a	43±7a	29±5	32±7	35±8a	40±11a

51±10