



Title	EEG-Based Monitoring of Anesthetic Depth
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Reference	SBU Alert report no 2008-02. Christiansson L, Gannedahl P, Wallin J. SBU. ISSN 1652-7151. www.sbu.se/published

Aim

To assess the scientific evidence with reference to the following questions:

- Does EEG-based monitoring of anesthetic depth allow patients to recover more quickly and better after anesthesia?
- Does EEG-based monitoring of anesthetic depth reduce the risk of awareness during anesthesia?
- Is EEG-based monitoring of anesthetic depth cost effective?

Conclusions and results

EEG-based monitoring of anesthetic depth is intended to complement traditional monitoring methods during anesthesia. Its primary aim is to adapt anesthesia to individual needs so patients can recover more quickly and be at lower risk for awareness while under anesthesia.

Patients at normal risk of awareness who undergo elective surgery

- EEG-based monitoring of anesthetic depth reduces (by a few minutes) the *early phase of recovery* after intravenous anesthesia (Evidence Grade 3). The time saved is not shown to have clinical or economic significance. Whether or not monitoring of anesthetic depth affects the *early phase of recovery* after inhalational anesthesia cannot be determined (Contradictory Scientific Evidence).
- Regarding the *later phase of recovery* (eg, time until discharge), scientific evidence on the effects of EEG-based monitoring of anesthetic depth is contradictory.
- Whether or not EEG-based monitoring of anesthetic depth reduces the risk of *awareness* during anesthesia cannot be assessed (Insufficient Scientific Evidence).
- Whether or not EEG-based monitoring of anesthetic depth has any effect on *patient satisfaction*, or on the incidence of *postanesthesia nausea/vomiting*, cannot

be determined (Contradictory Scientific Evidence).

Patients at high risk of awareness during anesthesia, or who undergo emergency surgery

- Whether or not EEG-based monitoring of anesthetic depth in risk patients has a positive effect on post-anesthesia *recovery* (Insufficient Scientific Evidence), or reduces the risk of *awareness* during anesthesia (Contradictory Scientific Evidence), cannot be determined.

In general anesthesia, the scientific evidence is inadequate to support routine use of EEG-based monitoring of anesthetic depth aimed at reducing the incidence of awareness or improving patient recovery.

Recommendations

No recommendations.

Methods

A systematic literature search was conducted primarily via electronic databases (PubMed and Cochrane Library) until March 2008. For inclusion in the systematic review, articles needed to meet predetermined criteria: the results of the studies should be relevant to the questions posed by the project, ie, have appropriate endpoints, follow-up period, and study design. A cost analysis based on Swedish conditions compared direct and indirect costs.

Further research/reviews required

None.