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Editorial
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Anesthesia Awareness Risk Factors: Some Cannot Be Controlled

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Keywords

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Editorial

Anesthesia Awareness is defined as the postoperative consciousness of events happened during general anesthesia. Despite the low incidence, anesthesia awareness is a complication of general anesthesia that may significantly influence the quality life of the patients, with dramatic cognitive and psychological dysfunctions, also causing post-traumatic stress disorder. The aim of this editorial is to discuss the identified risk factors. Anesthesia Awareness (AA) is defined as the occurrence of consciousness during a procedure performed under general anesthesia, subsequently the patient has recall of the event; recall does not include the time before general anesthesia is induced or the time of emergence from consciousness during general anesthesia; the reported incidence is 0.1% to 0.2%, and it represents a failure to achieve the primary aim of general anesthesia, defined as a drug-induced loss of consciousness during which an individual is not arousable, with great disability for patients even for long periods of time and therefore, it worries both patients and anesthesiologists enormously [1-8]. The diagnosis of AA is made by spontaneous reports, such as the recent National Audit Project (NAP) 5 [1]. Studies that did not use other diagnostic methods, that are Brice interview, showed a lower incidence of the event. In an attempt to resolve this controversy, Mashour and colleagues compared the incidence of AA with explicit recall in a single population of surgical patients who received both a standard postoperative evaluation (without a structured interview intended to detect awareness) and a modified Brice interview. The modified Brice interview detected 19 instances of definite intraoperative awareness with explicit recall in approximately 19000 surgical patients. Of these 19 instances, only three were detected independently based on spontaneous report. Although the modified Brice interview cannot be regarded as a 'gold-standard' psychometric test for awareness and memory, it has been associated consistently with a higher incidence compared with alternative methods [9]. Thus, recent quality assurance initiatives that determined AA incidences based on spontaneous reports are likely to have underestimated the incidence, probably based on limitations with this diagnostic approach [1]. As the AA is rare disease, so the evaluation of risk factors is based on heterogeneous studies reported over many years. Therefore, it is obvious that both the incidence and risk factors for awareness have changed according the changes in anesthetic drugs and monitoring techniques. Recently, in a retrospective matched case-control study enrolling surgical 61436 patients (ASA physical status I-III). Patients who received end-tidal anesthetic gas and Total Intra Venous Anesthesia (TIVA) showed a significantly higher incidence of developing AA compared to patients who were anesthetized using Laryngeal Masks (LMA). Furthermore, the use of muscle relaxant was also associated with increased incidence of awareness, while significantly lower incidence of awareness was found in patients who were anesthetized with volatile anesthetics. These findings suggest that anesthesia with a LMA under spontaneous ventilation and supplemented with volatile anesthetics may be the preferred anesthesia technique in order to provide a lower risk of intraoperative awareness [10]. The effects of TIVA was also investigated by Yu H and Wu and compared to anesthetic Combination of Intravenous and Inhaled Anesthesia (CIIA) in surgical patients. The occurrence of AA was significantly higher in TIVA group than that in the CIIA group (P=0.29). The authors concluded that CIIA and midazolam application may lower the risk of intraoperative awareness [11]. Patients whose airways are difficult to incubate are also at increased risk for awareness probably because insufficient attention is done to ensuring adequate anesthesia during prolonged intubation attempts [12]. It's difficult to predict AA because concentrations of anesthetic drugs in the blood are not measured in real time, Furthermore; there is variability in individual metabolism. Intra-operative use of an Electro Encephalo Gram (EEG) seems to be

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Table 1: Intra-operative use of an Electroencephalogram.

Author [ref.] (year)	Setting	Protective Factor	Years Spam	Comments
Kuo PJ [10]	Non-critically ill patients	Laryngeal Mask, Spontaneous Ventilation, Volatile Anesthetics	January 2009 to December 2014	ASA physical status I-III
Yu H [11]	Surgical patients	Combined Of Intravenous and Inhaled Anesthesia (CIIA), midazolam application	N/A	ASA physical status I-II
Cook TM[12]	Heterogeneous	Anticipate airway complications	N/A	A significant proportion of airway complications occur in the ICU and ED.

ED: Emergency Department; **ICU:** Intensive care unit; N/A: Not available

utopist and recently the Bispectral Index (BIS) monitor (a processed electroencephalographic device) used in the prevention of AA with explicit recall is regarded as controversial [13] (Table 1).

Conclusion

Given the low incidence of AA, future large-scale prospective studies, in which risk factors and populations are well defined, are needed. So far, the AA remains a hardly unpredictable puzzle even for the most experienced anesthesiologist.

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