

PAEDIATRICS

Intraoperative awareness during paediatric anaesthesia

H. J. Blussé van Oud-Alblas^{1 2*}, M. van Dijk², C. Liu¹, D. Tibboel², J. Klein¹ and F. Weber¹

¹Department of Anaesthesiology and ²Department of Paediatric Surgery, Erasmus University Medical Centre—Sophia Children's Hospital, Dr Molewaterplein 60, 3015 GJ Rotterdam, The Netherlands

*Corresponding author. E-mail: h.blussevanoudalblas@erasmusmc.nl

Background. Previous studies indicate a higher incidence of awareness during anaesthesia in children than in adults, that is, around 1% vs 0.2%. In this prospective cohort study, we determined the incidence of intraoperative awareness in children undergoing elective or emergency surgery at a university children's hospital.

Methods. Data from 928 consecutive paediatric patients, aged 5–18 yr, were collected prospectively over a 12 month period. Interviews using a structured questionnaire were scheduled at three time points: within 24 h after the operation, and 3–7 and 30 days after operation. Reports of suspected awareness were sent to four independent adjudicators. If they all agreed, the case was classified as a true awareness case.

Results. The interviews generated 26 cases of suspected awareness. Six cases were judged to be true awareness, equalling a 0.6% incidence (95% confidence interval 0.03–1.40%). Auditory and sensory perceptions were the sensations most reported by these six children. Pain, anxiety, and paralysis were less often mentioned. The children in general did not report awareness as stressful.

Conclusions. The incidence of awareness in this study, in children undergoing general anaesthesia, is comparable with recent reports from other countries, and appears to be higher than that reported in adults.

Br J Anaesth 2009; **102**: 104–10

Keywords: anaesthesia, paediatric; complications; psychological responses, postoperative

Accepted for publication: October 2, 2008

Intraoperative awareness refers to a patient's explicit recall of events during a procedure performed under general anaesthesia. Awareness is well described in adults, with an incidence in the order of 0.1–0.2% for low-risk surgical procedures.^{1 2} Being conscious during surgery is a traumatic event that may result in developing chronic post-traumatic stress disorder.³ Until recently, the incidence and aetiology of awareness in children had not been studied extensively. Two cohort studies in Australia and Switzerland in 864 and 410 children, respectively, reported an incidence of awareness of around 1%, which is considerably higher than in adults.^{4 5} Two recent cases of awareness in our institution⁶ triggered a systematic approach to evaluate whether awareness is a problem in paediatric anaesthesia. As incidences of awareness may depend on an institution's anaesthetic practice and patient population, the aim of this prospective study was to investigate the incidence of intraoperative awareness in

children in our hospital and to determine possible causes. Our hypothesis was that the incidence of awareness in our hospital would be similar to those reported in recent studies on awareness in children.

Methods

After approval from the institutional review board (Erasmus University Medical Centre, Rotterdam, The Netherlands), and written informed parental consent, children were enrolled in the study between May 2006 and May 2007. Inclusion criteria were age 5–18 yr and receiving general anaesthesia for elective or emergency procedures. Exclusion criteria were visual or hearing impairments, not being able to communicate in Dutch, cognitive impairment, expected ventilation after operation, out-of-hours emergency procedure, or additional neurophysiologic monitoring of depth of anaesthesia. Children

were secondarily excluded if they were too sleepy or too nauseous to be interviewed. Inclusion was not done until after the operation so as to prevent the influence of knowing one is participating in a study on awareness. Furthermore, preanaesthetic patient inclusion could have an impact on anaesthesia management, seeing that the anaesthetist might tend to prevent episodes of intraoperative awareness as best of possible. The anaesthesia department nevertheless had been formally informed of the study. The anaesthesia technique during the study was entirely at the discretion of the attending anaesthetist. For all patients, anaesthesia was induced in an induction room, after which they were transferred to the operation theatre.

Children were interviewed by purpose-trained interviewers, using an adapted interview from Brice and colleagues⁷ (Appendix 1). Children in day care were interviewed before discharge, hospitalized children were interviewed within the first 24 h after operation. Parents were present during the interview, but were asked not to influence the child's response. Follow-up interviews were held by phone call 3–7 days later and at 30 days after the operation. On these interviews, we first asked the parents whether they had seen any changes in the child's general behaviour.

Awareness was defined as the ability of patients to recall events happening between the induction of anaesthesia and return of consciousness. When awareness was suspected from the first interview, the principal investigator (H.J.B.O.-A.) talked with the child to obtain more details. If the first evidence of potential awareness emerged during the second or third interview, the principal investigator next interviewed the child by phone.

Interview

The questionnaire consisted of hierarchically organized questions. The first questions were open-ended, non-leading questions about events in the induction room and last memories before falling asleep. If a child could not respond to an open question, it was asked a concrete question. For example, 'Who was with you before you fell asleep?', 'Did the doctor put something on your arm or face to put you to sleep?', and 'What did the doctor put on your arm or face?'. The next questions were on first memories after surgery. Again, concrete questions were asked if the child could not respond to an open question. For example, 'Where did you wake up after surgery?', 'Were you alone or was someone with you when you woke up', and 'Who was with you when you woke up?'. Finally, direct questions were asked on recall of events during the operation.

If the child replied 'yes' to 'Did you feel anything during the operation', or 'Did you hear anything during the operation', (s)he was first asked to describe memories of the events in more detail. The principal investigator asked the child the awareness-specific questions originally

described by Moerman and colleagues⁸ (Appendix 1). These specific questions were not administered to children who had replied 'no' to the two questions on recall. At the end of the first interview, all children were asked whether they had recalled events during previous operations.

Every child with suspected awareness was offered referral for counselling or psychological support.

For every case of suspected awareness, a report was made with the child's age and sex, details of the operation, and memories described in the child's own words. After the end of the study, all reports were sent to four experienced paediatric anaesthetists in different university hospitals in the Netherlands. These adjudicators independently rated the cases as 'awareness', 'possible awareness', or 'no awareness'. If all four adjudicators rated a case as 'awareness', then it was defined as a 'true awareness' case. If at least one adjudicator classified the case as awareness, the case was defined as a 'possible awareness' case.

Data collection included basic patient characteristics data (age, sex, ASA physical status, type of surgery, and admission), details of induction and maintenance of anaesthesia, use of sedative premedication, use of tracheal intubation or laryngeal mask, use of neuromuscular blocker, caudal or epidural block, locoregional techniques, and length of anaesthesia.

Data are presented in descriptive form. The small number of true awareness cases precluded comparative analysis with the non-awareness group.

Results

One thousand and fifteen children were approached for participation in the study, of whom 36 (3.5%) refused informed consent. Fifty-one children (5%) were too sleepy or nauseous to be interviewed and were secondarily excluded from the study. The remaining 928 children all were interviewed after the operation. Seven hundred and thirty-five (80%) children were interviewed at 3–7 days and 733 (79%) at 30 days after surgery. The dropout was caused by failure to reach the children, parents, or both, or by refusal to be interviewed again. Types of surgical procedures are shown in Table 1.

Table 1 Details of procedures performed under general anaesthesia

Type of procedure	Number of children
General surgery and urology	229
Ear, nose, and throat surgery	172
Orthopaedic surgery	142
Plastic surgery	100
Lumbar puncture or bone marrow aspirate	60
Gastroscopy or colonoscopy	59
Dental surgery	48
Cardiac catheterization	30
Ophthalmology	29
Radiology procedures	24
Neurosurgery	10
Bronchoscopy	9
Other	16

Download English Version:

<https://daneshyari.com/en/article/8937666>

Download Persian Version:

<https://daneshyari.com/article/8937666>

[Daneshyari.com](https://daneshyari.com)