MEDICAL SCIENCE MONITOR

CLINICAL RESEARCH

e-ISSN 1643-3750
© Med Sci Monit, 2018; 24: 8773-8780
DOI: 10.12659/MSM.910734

Received: 2018.04.21
Accepted: 2018.07.24
Published: 2018.12.04

Evaluation of Preoperative Information Needs in Pediatric Anesthesiology

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

BDEF 1 Laura Bogusaite
ABCDEF 2 Ilona Razlevice
ABDEF 2 Laura Lukosiene
ACDEF 2 Andrius Macas

1 Medical Academy, Lithuanian University of Health Sciences, Kaunas, Lithuania
2 Department of Anesthesiology, Lithuanian University of Health Sciences, Kaunas, Lithuania

Corresponding Author: Ilona Razlevice, e-mail: ilonos_pastas@yahoo.com
Source of support: Departmental sources

Background: Adequate preoperative information for pediatric patients and their families can prevent preoperative anxiety and improve postoperative outcome. The aim of this study was to conduct a survey to determine the preoperative information needs of children and their parents before anesthesia for elective surgery.

Material/Methods: Two healthcare centers enrolled children from 10 to 17 years of age who had planned elective surgery under general or regional anesthesia, and their parents and anesthesiologists. A questionnaire was designed for the study. Participants were asked to complete the questionnaire on the day of the preoperative visit of the pediatric anesthesiologist.

Results: There were 158 respondents, including 43 children (27.2%) undergoing elective surgery, 92 parents (58.2%), and 23 pediatric anesthesiologists (14.6%). The most helpful way of providing information, according to 12 children (41.4%), 53 parents (67.1%), and 17 pediatric anesthesiologists (77.3%), was in written form as a leaflet. The most common requests for information included: the postoperative regimen, 78 parents (96.3%) and 28 children (90.3%); recovery from anesthesia, 77 parents (95.1%) and 29 children (93.5%); postoperative pain management, 78 parents (96.3%) and 26 children (83.9%); and duration of anesthesia, 78 parents (96.3%) and 23 children (74.2%).

Conclusions: A preoperative survey of children and their parents showed that the most requested information was about the postoperative regimen, recovery from anesthesia, postoperative pain management, and duration of anesthesia. Both children and parents preferred to have preoperative information provided in written form, and the best time to provide information was on the day before surgery.

MeSH Keywords: Anesthesia • Preoperative Period • Questionnaires

Full-text PDF: https://www.medscimonit.com/abstract/index/idArt/910734

Indexed in: [Current Contents/Clinical Medicine] [SCI Expanded] [ISI Alerting System] [ISI Journals Master List] [Index Medicus/MEDLINE] [EMBASE/Excerpta Medica] [Chemical Abstracts/CAS]

Background

Undergoing anesthesia and surgery is a stressful and traumatic experience for children and their parents. Studies in the US and Europe have shown that there remains a demand for more preoperative information by children and their parents, mainly because parents are often more concerned with their child's health than with their own [1]. Preoperative anxiety can cause both physiological and psychological responses in children, resulting in delayed induction of anesthesia, increased risk of anesthesia, and increased levels of stress hormones, which can suppress the immune response and delay postoperative wound healing [2–4]. Also, increased anxiety levels in parents can cause increased anxiety levels in their children [5].

Factors linked to anxiety and emotional distress in parents and children include lack of familiarity with the surgical setting, including the medical equipment, lack of preparation for painful procedures, and inadequate preoperative preparation [3,6]. Therefore, before surgery, families and their children need to be well-informed and prepared to reduce their levels of anxiety. Preoperative preparation may consist of a tour of the operating area, familiarization with the medical equipment, a surgical procedure simulation using a doll or video, and educational leaflets and booklets. According to some studies, preoperative education can have a positive effect on reducing the anxiety levels of parents and their children, but can also increase parental satisfaction with the surgical and medical care given, and decrease negative emotional behavior of children preoperatively and during induction of anesthesia [6–12]. The provision of adequate information for children and parents can reduce the traumatic effects of surgery, improve coping ability in children and parents, and develop a trusting relationship between the family and medical team [12].

Currently, the most frequently used method of providing preoperative information is verbal, often by a surgeon when the surgery is planned or on the day of surgery, during the preoperative visit by the pediatric anesthesiologist. Therefore, the majority of children and their parents may have their first direct contact with pediatric anesthesiologist during the preoperative visit on the day of elective surgery, and at this time the parents will be asked to provide informed consent for the surgery and anesthesia, but it can be a challenging process for the clinicians to ensure that any information given verbally at this stressful time is understood [13].

Although the provision and understanding of preoperative information is essential for pediatric patients and their families to improve postoperative outcome, the best way of providing preoperative information and the most requested information have not been previously evaluated. Therefore, the aim of this study was to conduct a survey to determine the preoperative information needs of children and their parents prior to anesthesia for elective surgery.

Material and Methods

Study centers and ethics approval

This survey was performed in two healthcare centers, the Lithuanian University of Health Sciences Kaunas Clinics and the Children's Hospital of Klaipeda, from September 2017 until March 2018. This study was approved by the Lithuanian University of Health Sciences Bioethics Centre (No. BEC-MF-99).

Study participants

Children between the ages of 10 to 17 years, who were scheduled for elective surgery, the parents of the children, and pediatric anesthesiologists participated in the study. Recruited children underwent elective surgery under general or regional anesthesia. A sample size of at least 113 patients was determined based on a previous survey that included children and parents before pediatric surgery [14].

Study questionnaire

A questionnaire with ten questions was constructed, with questions designed for children and their parents, as shown in Table 1. The first part of the questionnaire was designed to evaluate the respondent's knowledge about the anesthesia and preparation for anesthesia. Questions included whether alternative sources of information about anesthesia were investigated, the requirement for additional information, the best time and way to obtain the information, and the content of desired preoperative information. The questionnaire presented to the pediatric anesthesiologist was modified, as shown in Table 2. The pediatric anesthesiologists were asked to evaluate the knowledge of the parents about the anesthesia and the possible frequency of different complication during pediatric anesthesia. The rest of the pediatric anesthesiologist questionnaire questions corresponded to the children and parent questionnaire. Participants were asked to complete the questionnaire on the day of surgery, before the preoperative visit of the anesthesiologist.

Statistical analysis

Statistical analysis was performed using statistical software IBM SPSS version 20 for Windows. Descriptive statistical and numerical methods were used to describe the essential features of the data in the study.

Indexed in: [Current Contents/Clinical Medicine] [SCI Expanded] [ISI Alerting System] [ISI Journals Master List] [Index Medicus/MEDLINE] [EMBASE/Excerpta Medica] [Chemical Abstracts/CAS]

Table 1. Parents and children questionnaire.

Do you know what is anesthesia?	• Yes, it is _____ • No.
Who is anesthesiologist?	• Surgeon's assistant • Doctor specializing in anesthesiology • A nurse who has completed anesthetic course • Medical technician • Other
Can children eat before surgery?	• There are no dietary restrictions for children • Children can eat light food before surgery • Child should be fasting ≥6 hrs before surgery • I do not know.
Can children have a drink before surgery?	• Fluids for children are not limited • Children can not drink on the day of surgery • Child should not have had a drink at least 2 hrs before surgery • I do not know
Have you searched for preoperative information before sugery?	• Yes • No (you can move to 7 question).
Where have you searched for information?	• Consulted with medical staff (doctor, nurse) • Searched in the internet • Asked the acquaitances • Other
Whould you like to get more preoperative information?	• Yes • No (you can stop answering here).
How would you like to recieve this information?	• An additional counseling, training • A leaflet • An internet site • A video • Other
When would you like to get this information?	• The day of operation • The day before operation • A week before operation • Other
Check what kind of additional information is necessary (n)/unnecessary (unn)/does not matter (dnm)	• The preparation for operation (documents, items necessary to bring to hospital) • The nutrition and fluid intake regiment before anesthesia and surgery • The use of drugs for child's chronic diseases on operation day • The premedication (sleepy medicine) usage for preparation for anesthesia/surgery • The anesthesia and possible anesthetic techniques • The duration of anesthesia • The recovery after anesthesia/surgery • Postoperative nutrition and movement regiment recommendations • Postoperative pain management

Results

Respondents to the study questionnaire

A total of 158 respondents were enrolled in this study, which included 92 (58.2%) parents of children undergoing surgery, 43 children (27.2%), and 23 pediatric anesthesiologists (14.6%). In this study, 113 (71.5%) participants were from the Lithuanian University of Health Sciences Kaunas Clinics, and 45 (28.5%) participants were from the Children's Hospital of Klaipeda. Patients and parent demographic data are shown in Table 3.

Evaluation of the degree of preoperative knowledge of children and their parents

From the analysis of the completed questionnaires, 102 participants (75.6%) knew about and could define anesthesia, including 80 parents (87%) and 22 children (51.2%). The correct

Indexed in: [Current Contents/Clinical Medicine] [SCI Expanded] [ISI Alerting System] [ISI Journals Master List] [Index Medicus/MEDLINE] [EMBASE/Excerpta Medica] [Chemical Abstracts/CAS]

Table 2. Anesthesiologist questionnaire.

How would you evaluate parents knowledge about preparation for anesthesia and the anesthesiology before preoperative anesthesiologist visit?	• Excellent • Good • Average • Below average • Poor
How much time on average do you spend on providing information to the patient and their parents before anesthesia?	• Less than 5 mins • 5–15 mins • 15–30 mins • More than 15 mins
Check how often you encounter the following situations: always (a)/often (o)/sometimes (s)/rarely (r)/never (n)	• The child has not undergone all necessary preoperative examinations • The child drunk ≤2 hrs before anesthesia • The child ate ≤ 6hrs before anesthesia • The parents are misinformed about possible method of anesthesia • The child is misinformed about possible method of anesthesia
Do you think that there is a need for additional information for patients and their parents?	• Necessary yes • Unnecessary no
When should this information has to be given to the patients?	• The day of operation • The day before operation • A week before operation • Other
Which is the best way to give this information?	• An additional counseling, training • A leaflet • An internet site • A video • Other
Check what kind of additional information is necessary (n)/unnecessary (unn)/does not matter (dnm)	• The preparation for operation (documents, items necessary to bring to hospital) • The nutrition and fluid intake regimen before anesthesia and surgery • The use of drugs for child's chronic diseases on operation day • The premedication (sleepy medicine) usage for preparation for anesthesia/surgery • The anesthesia and possible anesthetic techniques • The duration of anesthesia • The recovery after anesthesia/surgery • Postoperative nutrition and movement regiment recommendations • Postoperative pain management

Table 3. Patients and parents demographic data. Data are shown as median (min–max) or proportions (n (%)).

Variable	n=158
Parents n (%)	92 (58.2%)
Children n (%)	43 (27.2%)
Anesthesiologists n (%)	23 (14.6%)
Parents education:	
University education n (%)	31 (33.7%)
Lower education n (%)	61 (66.3%)

Variable	n=158
Parents previous experience with pediatric anesthesia:	
Yes n (%)	49 (53.3%)
No n (%)	43 (46.7%)
Children previous experience with anesthesia:	
Yes n (%)	23 (53.5%)
No n (%)	20 (46.5%)
Parents age (years)	35 (18–54)
Patients age (years)	15 (10–18)

Indexed in: [Current Contents/Clinical Medicine] [SCI Expanded] [ISI Alerting System] [ISI Journals Master List] [Index Medicus/MEDLINE] [EMBASE/Excerpta Medica] [Chemical Abstracts/CAS]

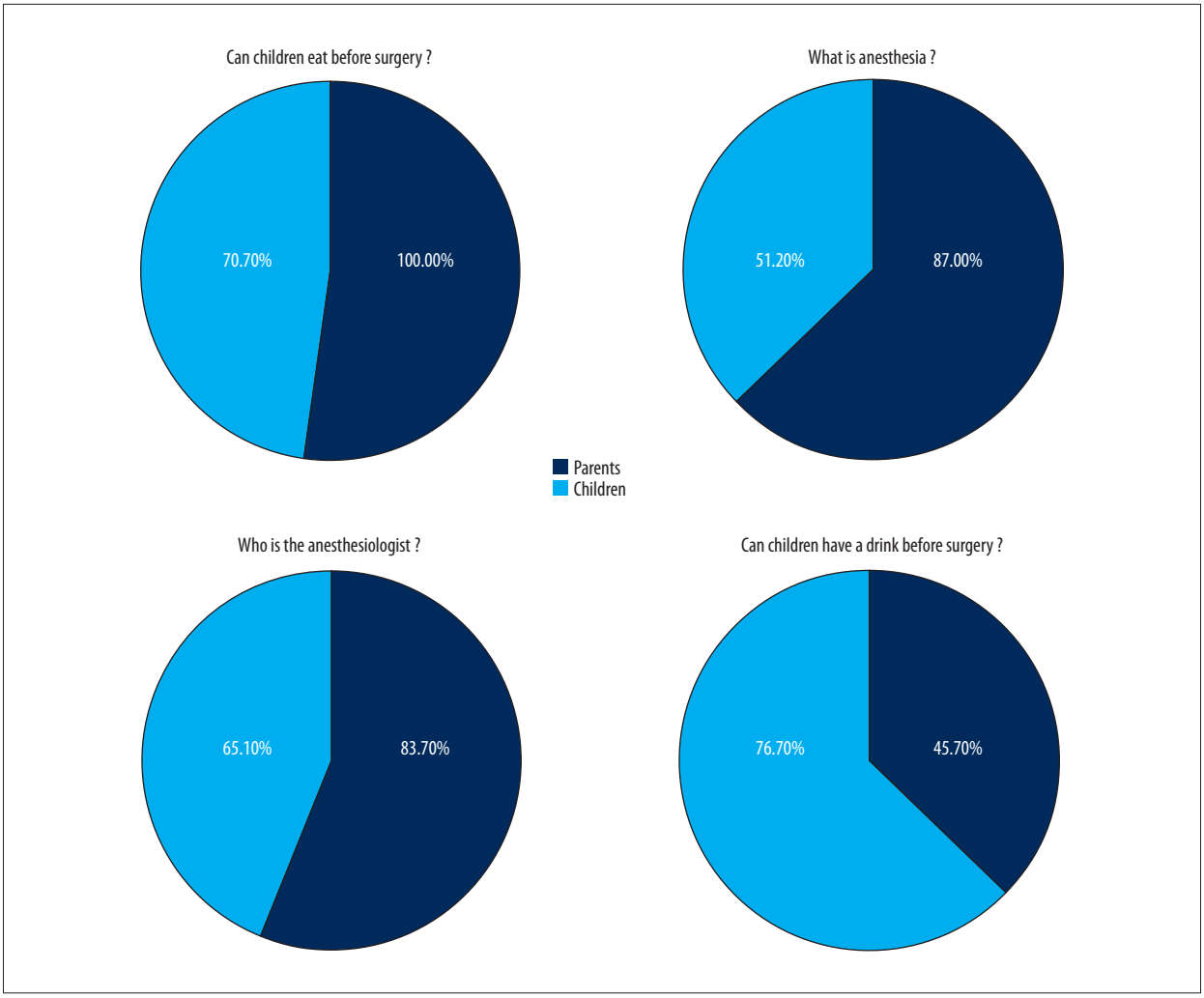

Figure 1. A comparision of the correct answers between children and parents.

meaning and understanding of the role of the anesthesiologist were known by 105 respondents (77.8%), including 77 parents (83.7%) and 28 children (65.1%). The correct answer to a question about food intake before anesthesia was given by 131 participants (97%), including 92 parents (100%) and 39 children (90.7%). The respondents who were aware of preoperative liquid intake were 75 (55.6%), including 42 parents (45.7%) parents and 33 children (76.7%), which was the only question before anesthesia that was answered better by children than parents. A comparison of the correct answers between children and parents shown in Figure 1.

Pediatric anesthesiologists were asked to evaluate the knowledge of the parents before the preoperative visit by choosing to rate the answers as excellent, good, average, below average, or poor. Most anesthesiologists evaluated the preoperative knowledge of the parents of the children as poor or below average, as shown in Table 4.

Table 4. Parents knowledge evaluation by anesthesiologists.

Evaluation	Respondents n (%)
Poor	8 (34.8)
Below average	8 (34.8)
Average	7 (30.4)
Good	0 (0)

Data are shown as proportions (n(%)).

Independent searching for information preoperatively by parents and children

Few respondents actively searched for information about anesthesia preoperatively, with parents being more active in the search process for information, with eight children (18.6%) and 33 parents (35.9%) performing independent searches for information.

Indexed in: [Current Contents/Clinical Medicine] [SCI Expanded] [ISI Alerting System] [ISI Journals Master List] [Index Medicus/MEDLINE] [EMBASE/Excerpta Medica] [Chemical Abstracts/CAS]

Table 5. The percentage of different kind of preoperative information need between parents and children.

Information about	Parents n (%)	Children n (%)	Total n (%)
Documents required by the hospital	69 (85.2)	24 (77.4)	93 (83.0)
Food and liquid consumption on the operation day	73 (90.1)	19 (61.3)	92 (82.1)
The use of medicines for the treatment of chronic diseases on the operation day	60 (74.1)	18 (58.1)	78 (69.6)
Premedication	63 (77.8)	22 (71.0)	85 (75.9)
Anesthesia and anesthesia types	71 (87.7)	23 (74.2)	94 (83.9)
Duration of anesthesia	78 (96.3)	23 (74.2)	101 (90.2)
Recovery from anesthesia	77 (95.1)	29 (93.5)	106 (94.6)
Postoperative regimen	78 (96.3)	28 (90.3)	106 (94.6)
Postoperative pain management	78 (96.3)	26 (83.9)	104 (92.9)

Data are shown as proportions (n(%)).

Preoperative information requirements

The majority of parents and children requested additional preoperative information, including 71 parents (78.9%) and 22 children (51.2%). Also, all 23 (100%) anesthesiologists who participated in the study believed that additional preoperative information about anesthesia would be necessary for patients and parents.

Preferred method and timing of receiving preoperative information

According to 53 parents (67.1%), 12 children (41.4%), and 17 anesthesiologists (77.3%), the most appropriate way of providing information was in written form using leaflets. According to both parents and children, the best time to receive information about anesthesia was on the day before surgery, while anesthesiologist agreed that the best time to provide information was a week before surgery.

Preoperative information requirements of parents and children

The most requested information was information about the postoperative regimen, recovery from anesthesia, postoperative pain management, and the duration of anesthesia. The percentage of each kind of preoperative information required is presented in Table 5.

Discussion

Preoperative information is an important part of the preparation of the patient for anesthesia and surgery. The results of this study showed that knowledge of the key aspects of anesthesia has improved during the past two decades, as 77.8% of our respondents knew what an anesthesiologist was and what their role was, while in 1998 a study published by Chew et al. showed that only 56.8% of patients understood who anesthesiologists were [15]. However, the findings of this study showed that the majority of respondents still wished to have more information about anesthesia.

The advantage of providing preoperative information that is clear and understandable has been shown to reduce preoperative anxiety in children and their parents, and to reduce negative child behavior, and to improve postoperative satisfaction with anesthesia and surgery [15–18]. Piščalkienė and colleagues undertook a study on the preoperative information requirements of adult patients and showed that about half of the patients attempted to overcome anxiety related to surgery by consulting their doctor, searching for information on the internet, or by asking their relatives [19].

However, it is important that the chosen source of information is reliable. As healthcare professionals, we should provide patients with reliable information most accurately and understandably. Currently, in Lithuanian healthcare centers, the most frequent form of patient education and preoperative information is delivered verbally. However, in the study by Langdon and colleagues, patients receiving written information scored significantly higher in retained written information (48% correct answers) when compared with those receiving only verbal information (38% correct answers) [20].

Therefore, in the present study, we investigated the need for additional information among child patient and their parents, and according to our study findings, most of the parents (78.9%)

Indexed in: [Current Contents/Clinical Medicine] [SCI Expanded] [ISI Alerting System] [ISI Journals Master List] [Index Medicus/MEDLINE] [EMBASE/Excerpta Medica] [Chemical Abstracts/CAS]

and children (51.2%) requested additional written information. This finding can be compared to the results of the study performed by Wisselo and colleagues from the Netherlands, in which 55% of parents said that they would like to get more information, although other methods of delivering information to patients have been tried, including the use of videos [21,22]. Wisselo et al. found that the use of an informative booklet was preferred by 90% of parents [21]. Therefore, the need for written information among parents, in addition to preoperative consultation, is supported by this previous study [21]. In the present study, the most requested form of additional information was the use of a written leaflet. According to the study by Spencer and Franck, the setting and timing of information delivery were also important considerations [23]. Therefore, in our study, we asked participants to choose the best time to receive preoperative information and found that this was on the day before surgery.

Also, in our study, we investigated what kind of preoperative information was the most requested information among children and their parents. Information about postoperative regimen, recovery from anesthesia, postoperative pain management, and duration of anesthesia were the most relevant. The findings of the present study are supported by previous studies in which the most requested information from parents was about premedication, induction of anesthesia, side-effects of anesthesia, and postoperative pain management [21–24]. There were slight differences between studies, but concerns about pain management are common. A clinical audit performed in New Zealand showed that addressing children's postoperative analgesic needs was inadequate [24]. Also, a literature review published in 2010 showed that improving pain management requires a multifactorial approach and one part of this approach would be appropriate patient education [25]. A survey conducted using a preoperative questionnaire of children, parents, and pediatric anesthesiologists indicated the need for additional information regarding pediatric anesthesia and surgery. In our opinion, additional information could enhance the quality of pediatric surgical services in Lithuanian healthcare centers.

Conclusions

The aim of this study was to conduct a survey to determine the preoperative information needs of children and their parents prior to anesthesia for elective surgery. The findings showed that the most requested information was about the postoperative regimen, recovery from anesthesia, postoperative pain management, and duration of anesthesia. Both children and parents preferred to have the preoperative information provided in written form, and the best time to deliver information was on the day before surgery. This study has helped to identify the most relevant issues concerning parents, children, and pediatric anesthesiologists. Developing a preoperative patient information leaflet for parents and children would be a useful way to enhance the quality of our service, reduce patient anxiety caused by uncertainty, and enhance the satisfaction of patients and their parents with their clinical and surgical management.

References:

1. MacLaren J, Kain ZN: A comparison of preoperative anxiety in female patients with mothers of children undergoing surgery. Anesth Analg, 2008; 106: 810–13
2. Kain ZN, Mayes LC, Caramico LA: Preoperative preparation in children: A cross-sectional study. J Clin Anesth, 1996; 8: 508–14
3. AL-Sagarat AY, Al-Oran HM, Obeidat H et al: Preparing the family and children for surgery. Crit Care Nurs Q, 2017; 40(2): 99–107
4. Weissman C: The metabolic response to stress. An overview and update. Anesthesiology, 1990; 73: 308–27
5. Bevan JC, Haig MJ, Johnston C et al: Preoperative parental anxiety predicts behavioural and emotional responses to the induction of anaesthesia in children. Can J Anaesth, 1990; 37: 177–182
6. Lin CJ, Liu HP, Wang PY et al: The effectiveness of preoperative preparation for improving perioperative outcomes in children and caregivers. Behav Modif, 2018 [Epub ahead of print]
7. Bailey L: Strategies for decreasing patient anxiety in the perioperative setting. AORN J, 2010; 92(4): 445–60
8. Fincher W, Shaw J, Ramelet AS: The effectiveness of a standardised preoperative preparation in reducing child and parent anxiety: A single-blind randomised controlled trial. J Clin Nurs, 2012; 21(7–8): 946–55
9. Cuzzocrea, F, Gugliandolo MC, Larcan R et al: A psychological preoperative program: Effects on anxiety and cooperative behaviors. Paediatr Anaesth, 2013; 23(2): 139–43
10. Wakimizu, R, Kamagata S, Kuwabara T, Kamibeppu K: A randomized controlled trial of an at-home preparation programme for Japanese preschool children: Effects on children's and caregivers' anxiety associated with surgery. J Eval Clin Pract, 2009; 15: 393–401
11. William Li HC, Lopez V, Lee TL. Effects of preoperative therapeutic play on outcomes of school-age children undergoing day surgery. Res Nurs Health, 2007; 30: 320–32
12. Astuto M, Rosano G, Rizzo G et al: Preoperative parental information and parents' presence at induction of anaesthesia. Minerva Anestesiol, 2006; 72(6): 461–65
13. Smith L, Callery P: Children's accounts of their preoperative information needs. J Clin Nurs, 2005; 14: 230–38
14. Landier M, Villemagne T, Le Touze A et al: The position of a written document in preoperative information for pediatric surgery: A randomized controlled trial on parental anxiety, knowledge and satisfaction. J Pediatr Surg, 2018; 53(3): 375–80
15. Chew ST, Tan T, Tan SS, Ip-Yam PC: A survey of patients' knowledge of anaesthesia and perioperative care. Singapore Med J, 1998; 39(9): 399–402
16. Margolis JO, Ginsberg B, Dear GL et al:Paediatric preoperative teaching: Effects at induction and postoperatively. Paediatr Anaesth, 1998; 8(1): 17–23
17. Armstrong TSH, Aitken HL: The developing role of play preparation in paediatric anaesthesia. Paediatr Anaesth, 2000; 10: 1–4
18. Bellew M, Atkinson KR, Dixon G, Yates A: The introduction of a paediatric anaesthesia information leaflet: An audit of its impact on parental anxiety and satisfaction. Paediatr Anaesth, 2002; 12(2): 124–30

Indexed in: [Current Contents/Clinical Medicine] [SCI Expanded] [ISI Alerting System] [ISI Journals Master List] [Index Medicus/MEDLINE] [EMBASE/Excerpta Medica] [Chemical Abstracts/CAS]

19. Piščalkienė V, Stasiūnaitienė E: Priešoperacinio nerimo raiška ir jo mažinimo galimybės. Sveikatos Mokslai/Health Sciences, 2014; 24(6): 166–71 [in Lithuanian]
20. Langdon IJ, Hardin R, Learmonth ID: Informed consent for total hip arthroplasty: Does a written information sheet improve recall by patients? Ann R Coll Surg Engl, 2002; 84(6): 404–8.
21. Wisselo TL, Stuart C, Muris P: Providing parents with information before anaesthesia: what do they really want to know? Paediatr Anaesth, 2004; 14: 299–307
22. Cassady JF, Wysocki TT, Miller KM et al: Use of a preanesthetic video for facilitation of parental education and anxiolysis before pediatric ambulatory surgery. Anesth Analg, 1999; 88: 246–50
23. Spencer C, Franck LS: Giving parents written information about children's anesthesia: Are setting and timing important? Paediatr Anaesth, 2005; 15(7): 547–53
24. Twycross A: Managing pain in children: where to from here? J Clin Nurs, 2010; 19(15–16): 2090–99
25. Shrestha-Ranjit JM, Manias E: Pain assessment and management practices in children following surgery of the lower limb. J Clin Nurs, 2010; 19: 118–28

Indexed in: [Current Contents/Clinical Medicine] [SCI Expanded] [ISI Alerting System] [ISI Journals Master List] [Index Medicus/MEDLINE] [EMBASE/Excerpta Medica] [Chemical Abstracts/CAS]