

Parents' Satisfaction with Pediatric Ambulatory Anesthesia in Northeast of Thailand

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Objective: Study the satisfaction of parents with ambulatory anesthesia and associated factors, including characteristics of the patients and their parents.

Material and Method: This was a prospective, descriptive, observation study. The authors included children who were scheduled for ambulatory anesthetic service between birth and 14 years of age and attended at Srinagarind Hospital, Khon Kaen, Thailand. The authors excluded patients whose parents could not be reached by telephone. Before anesthesia, the authors recorded the patients and parents' characteristics, level of information perception (pre-, peri- and post-anesthesia and complications). After anesthesia, the anesthesia technique and any complications were recorded. The day after anesthesia, the authors made phone calls to the patients to record the parents' satisfaction score (viz, of overall, pre-, peri- and post-anesthesia care, and information about the level of patient care at home), and any anesthesia related complications.

Results: Ninety-two patients and their parents were included in the present study. Overall parents' satisfaction with the anesthesia service was 96.7% (i.e., 89/92) (95% CI 90.8-99.3). Parents' satisfaction with pre- and peri-anesthesia care was 100% (95% CI 96.1-100) and 97.9% (95% CI 92.4-99.7), respectively. Parents' satisfaction with the PACU care and information of patient care at home was 96.7% (95% CI 90.8-99.3) and 91.3% (95% CI 83.6-96.2), respectively. Associated factors where parents were dissatisfied included PACU care satisfaction (i.e., relative risk 22.5 (95% CI 3.2-158)) and patient care information at home (i.e., relative risk 13.3 (95% CI 1.3-136.0)).

Conclusion: The present study showed a high level of parents' satisfaction. Parents' dissatisfaction associated with PACU care and information about post anesthesia care at home. Additionally, information on parents' characteristics provides invaluable data for improving pediatric ambulatory anesthesia in Srinagarind Hospital.

Keywords: Anesthesia, Child, Pediatric, Out-patient, Parent, Satisfaction

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Pediatric ambulatory anesthesia is increasing as many procedures are now performed in an ambulatory setting. The advantages include a reduction in anxiety and infection rates, cost effectiveness, and bed space not used up. Pediatric ambulatory anesthesia is now the standard of care in many developed countries; however, quality of care involves a variety of inter-related and complex variables.

In developing countries, the overall health-care system has limited resources so the focus is upon management of crisis outcomes. Thus, the availability of the ambulatory service pattern is limited. Moreover, many parents would actually prefer to have their child admitted to hospital after surgery rather than taking them home. Consequently, practice guidelines have been created for pre-operative preparation, intra- and post-operative care at home^(1,2).

Patient satisfaction after anesthesia is an important outcome of hospital care because it proxies for the overall quality of care comprised in the structure, process, and outcome of service^(3,4). Some children are

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too young to evaluate and express their satisfaction thus, parents' satisfaction with anesthesia care is used as a surrogate measure of the children's satisfaction. Our hospital offers pediatric ambulatory anesthesia service for patients' from both urban and rural areas of Northeast Thailand. The authors' aim was to study parents' satisfaction with ambulatory anesthesia service and its associated factors, including the parents' and patients' characteristics.

Material and Method

After receiving approval from our institution's research ethics board, the authors conducted a prospective, descriptive, observation study between June and November 2006, at Srinagarind Hospital, a tertiary care teaching hospital in Khon Kaen, North-east Thailand. The authors included children who were scheduled for ambulatory anesthetic service between birth and 14 years of age for pediatric surgery, orthopedic surgery, ear nose throat surgery, and radiological investigation. The authors excluded patients whose parents could not be reached by telephone, could not communicate, or who did not stay with the child on the first day after anesthesia.

Before anesthesia, all of the patients received a pre-anesthetic evaluation and preparation by an on service anesthesiologist. The anesthesiologists were not apprised of the present study and the authors were not involved in the anesthetic care. The anesthesia technique and post-operative care were conducted by an anesthesiologist using the authors' standards practice until the patient was discharged. Whether the parents were present at induction and visited in the post anesthesia care unit (PACU) depended on the preference of the attending anesthesiologist.

Before anesthesia, the authors recorded the patients' characteristics (*viz.*, sex, age, and ASA physical status) and the parents' characteristics (*i.e.*, sex, age, education level, financial capacity, and mode of transportation). The level of information perception vis-a-vis pre-anesthesia preparation, peri- and post-anesthesia care, and occurrence of any complications were recorded as "not received", "received but not understood", and "understood". The authors also recorded the parents' anxiety score (*viz.*, marked, little, or none) by interviewing their parents.

Immediately after discharge from the PACU, the authors' recorded the anesthetic technique, duration, surgical intervention and complications in the PACU (*e.g.*, uncontrolled pain (*i.e.*, a pain score > 4 after treatment), uncontrolled post-operative nausea

vomiting, uncontrolled bleeding, and unplanned admission).

Twenty hours after discharge from the PACU, the authors' research team phoned the parent who had brought the child and recorded this data. The authors recorded the parents' satisfaction regarding overall anesthesia service, pre-anesthesia care, peri-anesthesia care, PACU care, and patient-care at home (*i.e.*, very dissatisfied, dissatisfied, satisfied, and very satisfied). Parents not present at induction or who did not visit the PACU were excluded from commenting on pre-anesthesia care and PACU care. The authors recorded any anesthesia-related complications on the first day.

Data analysis was performed using STATA for Windows version 8.0 (Stata Corporation, TX, USA). Patients and parents' characteristics were presented as means (SD), medians (range), or percentages, as appropriate. Parents' satisfaction was presented as percentages and the 95% CI. All associated factors were considered binary variables. Univariable analysis was used to quantify any association between two categorical variables (*i.e.*, χ^2 -test or Fishers' exact test, as appropriate). Multivariate analyses using logistic regression and the backward likelihood ratio procedure were used to assess the specific effect of each associated factor. $P < 0.05$ was needed to establish statistical significance. The sample size required was based on: (1) a parents' satisfaction rating of 0.97⁵; (2) a Type I error of 0.05; (3) an absolute precision of 0.04; and, (4) an 80% power.

Results

Ninety-nine patients and their parents were included in the present study. Seven patients were excluded from the analysis because they could not be contacted by telephone.

Patients and parents' characteristics are presented in Tables 1 and 2, respectively. Parents' satisfactions are reported in Fig. 1. Overall parents' satisfaction with the anesthesia service was 96.7% (89/92) (95% CI 90.8-99.3). Parents' satisfaction for pre- and peri-anesthesia care was 100% (95% CI 96.1-100) and 97.9% (95% CI 92.4-99.7), respectively. Parents' satisfaction with the PACU care and information for at-home patient care was 96.7% (95% CI 90.8-99.3) and 91.3% (95% CI 83.6-96.2), respectively. The rank of most immediate anesthesia-related complications was PONV (11.9%), 'did not report uncontrolled pain', 'uncontrolled bleeding', and 'unplanned admission'.

Table 1. Patient characteristics

Characteristics		Percent
Gender	Male	58.7
	Female	41.3
Age (median (range); yrs)		3.6 (0.25-14)
ASA physical status	I	73.9
	II	21.7
	III	4.3
Procedure	Pediatric surgery	56.5
	MRI investigation	19.6
	Urologic surgery	8.7
	Ear nose throat surgery	6.5
	Plastic surgery	5.4
	Orthopedic surgery	2.2
	Eye surgery	1.1
Anesthetic time	< 1 hour	69.6
	1-2 hours	28.3
	> 2 hours	2.1
Anesthetic technique	Inhalation anesthesia	68.5
	Balanced general anesthesia	25.0
	Total intravenous anesthesia	3.3
	Combined RA and GA	3.3

Table 2. Parental characteristics

Characteristics		Percent
Gender	Male	13
	Female	87
Age (mean (SD); yrs)		33.5±7.5
Education level	Primary education or below	28.3
	Secondary education	37.0
	University education	34.8
Level of information perception Pre anesthesia preparation information	Not received	13
	Received but not understand	25
	Understand	62
Peri-post anesthesia care information	Not received	31.5
	Received but not understand	28.3
	Understand	40.2
Complication information	Not received	44.6
	Received but not understand	20.7
	Understand	34.8
Preoperative anxiety level	None	46.7
	Little	43.5
	Marked	9.8
Transportation mode	Private car	48.9
	Motorcycle	16.3
	Public transport	34.8
Finance	Self payment	16.3
	Medicare benefits	81.5
	Insurance	2.2

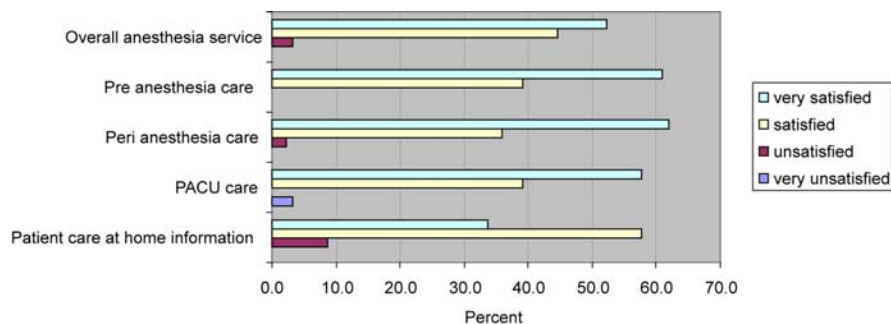


Fig. 1 Parental satisfaction

After doing the univariate and multivariate analyses, the factors associated with parents' dissatisfaction included PACU care satisfaction (relative risk 22.5 (95% CI 3.2-158)) and patient care at home information (relative risk 13.3 (95% CI 1.3-136.0)). Anesthetic factors (*i.e.*, NPO time, induction technique, anesthetic technique) and parent factors (*i.e.*, sex, age, education level, finance, transportation mode, anxiety score) were not associated with parents' satisfaction ($p > 0.05$).

Discussion

The present study revealed a high level of parents' satisfaction with anesthesia care. Moreover, the associated factors with dissatisfaction were quality of PACU care and information on patient care at home. The PACU care confronts post-operative symptoms such as crying, pain, and surgical complications. As per previous data⁽⁶⁾, parents generally expressed a high degree of satisfaction that was good and correlated significantly with environmental comfort and post-operative observations performed by an anesthesiologist.

The comforts of the environment also represent a reason for satisfaction and parents' concepts and beliefs are some of the most important factors influencing the success of pediatric ambulatory surgery⁽⁷⁾. Rapid recovery from anesthesia and a quick discharge from hospital are not key expectations of parents of child admitted for ambulatory surgery. Most parents expect their child to sleep after surgery and most even believe that more pain indicates a more rapid recovery. Education is needed on the advantages of a rapid recovery⁽⁸⁾.

Adequate provision of information during the post-operative period for patients' parents requires improvement. An educational program preparing parents for induction of anesthesia, visiting the PACU and anesthesia care should be offered by personnel

or be available in an information pamphlet⁽⁹⁾. This education would increase parents' satisfaction with the care and decrease their anxiety, which has an inverse negative relationship with the 'satisfaction with care' score. Parents always expect more explanation and detail whether it be from an information pamphlet or verbal communication with personnel. Consequently, parents with sufficient information have a higher satisfaction score⁽¹⁰⁻¹³⁾. Notwithstanding, there are many different dimensions to satisfaction which involves, not only the strictly clinical aspects. One example is the communication content/frequency between personnel and parents regarding the comforts provided by the hospital.

Most of the presented procedures were herniorrhaphy, circumcision, and MRI investigation. As in other studies, the presented anesthesia technique was principally by inhalation. The authors avoided using a muscle relaxant in ambulatory anesthesia. The majority of our patients, however, required intubation. Most parents and patients prefer anesthetic sleep over against regional anesthesia, as was found in other studies⁽¹⁴⁾. Our complications were not more numerous than other previous studies^(15,16).

Most attending parents' were mothers, who have been identified as being more anxious than fathers⁽¹¹⁾. Most parents had secondary education or university. And yet, the authors found an obstacle to improving anesthesia care was the parents' perception of information; most did not understand the information. Peri-post anesthesia care and information on complications was most difficult to convey/understand. The authors used a leaflet as well as personnel to inform parents about this information but it was inadequate. The parents in the present study had a low anxiety level, which is perhaps explained by Thai culture, wherein people are taught not to show emotion, especially anxiety. Transportation was an important problem, as one-third of the families depended

on public transportation. Public transportation was frequently the cause of delay and limited time. Despite the fact that half of the parents owned a private car, most used a rental care service to get to hospital.

Pediatric ambulatory anesthesia was successful in our hospital, despite the resource limitations of being a developing country. The primary concern regarding ambulatory anesthesia is the maintenance of the same quality of care received by in-patients⁽¹⁷⁾. Unplanned admissions are considered an important measure of the quality of pediatric ambulatory anesthesia⁽¹⁸⁾. The presented data and previous data in developing countries actually show a low rate of unplanned admissions without serious morbidity or mortality in any patient age group⁽¹⁴⁾.

Conclusion

The present study revealed high parents' satisfaction with pre- and peri-anesthesia care. Associated factors with poor satisfaction levels included: PACU and patient care at-home information. Parents' characteristics showed problems vis-a-vis necessary information and transportation; notwithstanding, the pediatric ambulatory anesthesia service has low mortality and few morbid complications.

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References

1. White PF, Eng M. Fast-track anesthetic techniques for ambulatory surgery. *Curr Opin Anaesthesiol* 2007; 20: 545-57.
2. Ferrari LR. Preoperative evaluation of pediatric surgical patients with multisystem considerations. *Anesth Analg* 2004; 99: 1058-69.
3. Myles PS, Williams DL, Hendrata M, Anderson H, Weeks AM. Patient satisfaction after anaesthesia and surgery: results of a prospective survey of 10,811 patients. *Br J Anaesth* 2000; 84: 6-10.
4. Donabedian A. The quality of care. How can it be assessed? *JAMA* 1988; 260: 1743-8.
5. Philip BK. Patients' assessment of ambulatory anesthesia and surgery. *J Clin Anesth* 1992; 4: 355-8.
6. Iacobucci T, Federico B, Pintus C, de Francisci G. Evaluation of satisfaction level by parents and children following pediatric anesthesia. *Paediatr Anaesth* 2005; 15: 314-20.
7. Darbyshire P. Mothers' experiences of their child's recovery in hospital and at home: a qualitative investigation. *J Child Health Care* 2003; 7: 291-312.
8. Sikich N, Carr AS, Lerman J. Parental perceptions, expectations and preferences for the post-anaesthetic recovery of children. *Paediatr Anaesth* 1997; 7: 139-42.
9. Chan CS, Molassiotis A. The effects of an educational programme on the anxiety and satisfaction level of parents having parent present induction and visitation in a postanesthesia care unit. *Paediatr Anaesth* 2002; 12: 131-9.
10. 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: 124-30.
11. Shirley PJ, Thompson N, Kenward M, Johnston G. Parental anxiety before elective surgery in children. A British perspective. *Anaesthesia* 1998; 53: 956-9.
12. Spencer C, Franck LS. Giving parents written information about children's anesthesia: are setting and timing important? *Paediatr Anaesth* 2005; 15: 547-53.
13. Margolis JO, Ginsberg B, Dear GL, Ross AK, Goral JE, Bailey AG. Paediatric preoperative teaching: effects at induction and postoperatively. *Paediatr Anaesth* 1998; 8: 17-23.
14. Hariharan S, Chen D, Merritt-Charles L, Rattan R, Muthiah K. Performance of a pediatric ambulatory anesthesia program - a developing country experience. *Paediatr Anaesth* 2006; 16: 388-93.
15. Sandner-Kiesling A, Schwarz G, Vicenzi M, Fall A, James RL, Ebner F, et al. Side-effects after inhalational anaesthesia for paediatric cerebral magnetic resonance imaging. *Paediatr Anaesth* 2002; 12: 429-37.
16. Villeret I, Laffon M, Duchalais A, Blond MH, Lecuyer AI, Mercier C. Incidence of postoperative nausea and vomiting in paediatric ambulatory surgery. *Paediatr Anaesth* 2002; 12: 712-7.
17. Letts M, Davidson D, Splinter W, Conway P. Analysis of the efficacy of pediatric day surgery. *Can J Surg* 2001; 44: 193-8.
18. D'Errico C, Voepel-Lewis TD, Siewert M, Malviya S. Prolonged recovery stay and unplanned admission of the pediatric surgical outpatient: an observational study. *J Clin Anesth* 1998; 10: 482-7.

ความพึงพอใจของผู้ปกครองต่อการวางยาระงับความรู้สึกเด็กแบบผู้ป่วยนอกในภาคตะวันออกเฉียงเหนือของประเทศไทย

สุหทัยา บุญมาก, พลพันธ์ บุญมาก, กฤตวรรณ โพธิ์รักษา, ณัฐกานต์ หุ่นธานี

วัตถุประสงค์: เพื่อศึกษาความพึงพอใจของผู้ปกครองต่อการวางยาระงับความรู้สึกเด็กแบบผู้ป่วยนอกในภาคตะวันออกเฉียงเหนือของประเทศไทย รวมทั้งปัจจัยที่เกี่ยวข้อง ลักษณะของผู้ป่วยและผู้ปกครอง

วัสดุและวิธีการ: ทำการศึกษาเชิงพรรณนาแบบไปข้างหน้าในผู้ป่วยเด็กที่มารับการวางยาระงับความรู้สึกแบบผู้ป่วยนอกอายุตั้งแต่แรกเกิดจนถึง 14 ปี ที่โรงพยาบาลศรีนครินทร์ จังหวัดขอนแก่น ประเทศไทย ผู้ป่วยที่ไม่สามารถติดต่อได้ทางโทรศัพท์จะถูกตัดออกจากการศึกษา โดยทำการเก็บข้อมูลลักษณะของผู้ป่วยและผู้ปกครอง การรับรู้ข้อมูลเกี่ยวกับการเตรียมตัวก่อน การดูแลขณะและหลังการวางยาระงับความรู้สึก รวมทั้งภาวะแทรกซ้อน หลังจากการวางยาระงับความรู้สึกจะเก็บข้อมูล วิธีการ และภาวะแทรกซ้อน โดยที่หลังจากนั้น 1 วันจะโทรศัพท์เพื่อสอบถามข้อมูลความพึงพอใจต่อบริการวางยาระงับความรู้สึกโดยรวม การดูแลก่อน ขณะ และหลังการวางยาระงับความรู้สึก การให้ข้อมูลการดูแลผู้ป่วยที่บ้าน รวมทั้งภาวะแทรกซ้อนต่าง ๆ

ผลการศึกษา: ทำการศึกษานักป่วย 92 ราย ความพึงพอใจต่อบริการวางยาระงับความรู้สึกโดยรวมเป็นร้อยละ 96.7 (95% CI 90.8-99.3) ความพึงพอใจต่อการดูแลก่อนและขณะวางยาระงับความรู้สึกเป็นร้อยละ 100 (95% CI 96.1-100) และร้อยละ 97.9% (95% CI 92.4-99.7) ตามลำดับ ความพึงพอใจต่อการดูแลช่วงหลังการวางยาระงับความรู้สึกและการให้ข้อมูลการดูแลผู้ป่วยที่บ้านเป็นร้อยละ 96.7 (95% CI 90.8-99.3) และร้อยละ 91.3 (95% CI 83.6-96.2) ตามลำดับ ปัจจัยที่เกี่ยวข้องต่อการไม่พึงพอใจโดยรวมคือ การดูแลช่วงหลังการวางยาระงับความรู้สึก และการให้ข้อมูลการดูแลผู้ป่วยที่บ้านคิดเป็น 22.5 เท่า (95% CI 3.2-158) และ 13.3 เท่า (95% CI 1.3-136.0) ตามลำดับ

สรุป: ผลการศึกษาพบว่าผู้ปกครองมีความพึงพอใจในการบริการวางยาระงับความรู้สึกแบบผู้ป่วยนอกสูง โดยที่การดูแลช่วงหลังการวางยาระงับความรู้สึกและการให้ข้อมูลการดูแลผู้ป่วยที่บ้านมีผลต่อความพึงพอใจของผู้ปกครอง นอกจากนี้ยังพบข้อมูลลักษณะผู้ปกครองและผู้ป่วยที่มีประโยชน์ต่อการปรับปรุงการให้บริการวางยาระงับความรู้สึกแบบผู้ป่วยนอก
