ORIGINAL ARTICLE

Pain-related evaluation and interventions in children in the anesthetic care unit*

Avaliação e intervenções relacionadas à dor em crianças na sala de recuperação anestésica

Ana Carolina Corbanezi Mendes Sancho[1], Rachel de Carvalho[2]

* *Received from the School of Nursing, Israelite Hospital Albert Einstein (FEHIAE). São Paulo, SP.*
• *End of Nursing Graduation Course Paper.*

ABSTRACT

BACKGROUND AND OBJECTIVES: Children in the postoperative period may have acute pain of variable intensity, and it is up to nurses and physicians to evaluate and treat pain, helping children to live this situation in the least traumatic way. This study aimed at evaluating the incidence of pain and the change in vital parameters of preschoolers in the immediate postoperative period of general surgeries, in addition to identifying prescribed and administered analgesics to treat pain during their stay in the anesthetic care unit (ACU).
METHOD: This was a field, descriptive-exploratory, prospective and quantitative research carried out with 32 children submitted to general surgeries and admitted to the ACU of a private hospital in São Paulo.
RESULTS: Most patients were males, with predominant age of 4 years. Most common surgeries were adenotonsillectomy, postectomy and adenoidectomy under general anesthesia and most commonly prescribed analgesics were dipirone and paracetamol. Only two children had pain during their ACU stay, being medicated with paracetamol and nalbuphine, with total pain remission.
CONCLUSION: Postoperative pain incidence was low, without significant changes in vital parameters.
Keywords: Anesthetic recovery period, Care unit, Children, Pain measurement, Postoperative pain.

RESUMO

JUSTIFICATIVA E OBJETIVOS: No período pós-operatório de pacientes pediátricos, pode ocorrer dor aguda de intensidade variável, e cabe aos enfermeiros e médicos avaliar e tratar a dor, ajudando as crianças a vivenciarem esta situação da forma menos traumática possível. Os objetivos deste estudo foram avaliar a incidência de dor e alterações dos parâmetros vitais, em crianças pré-escolares no pós-operatório imediato de cirurgias gerais, identificar os analgésicos prescritos e administrados no tratamento da dor, durante sua permanência na sala de recuperação anestésica (SRA).
MÉTODO: Pesquisa de campo, descritivo-exploratória, prospectiva e quantitativa, com 32 crianças submetidas a cirurgias gerais e internadas na SRA de um hospital particular de São Paulo.
RESULTADOS: A maioria dos pacientes era do gênero masculino, com idade predominante de 4 anos. As cirurgias mais realizadas foram adenoamigdalectomia, postectomia e adenoidectomia, sob anestesia geral e os analgésicos mais prescritos foram dipirona e paracetamol. Apenas duas crianças tiveram dor durante sua permanência na SRA, sendo medicadas com paracetamol e nalbufina, com regressão total da dor.
CONCLUSÃO: A incidência de dor no pós-operatório imediato foi baixa, não havendo alterações significativas nos parâmetros vitais.
Descritores: Criança, Dor pós-operatória, Medição da dor, Período de recuperação da anestesia, Sala de recuperação.

INTRODUCTION

Pediatric patients feel acute postoperative pain similarly to adult patients[1]. Health professionals have the responsibility of evaluating and using adequate strategies for pain management, helping pediatric patients to live this situation in the least possible traumatic manner[2,3].
Pain is truly subjective and personal, characterized as a multidimensional experience with different qualities and intensities, and is affected by affective-motivational variables[4].
Acute pain evaluation involves its intensity, quality, duration and psycho-affective influence, so that diagnosis is done and the most effective therapy for its control is chosen to prevent discomfort, agitation and hemodynamic changes and to decrease hospital stay[1,5].
The understanding and the actions of the whole health team with

1. Nurse of the Medical-Surgical Clinic, Israelite Hospital Albert Einsten (HIAE). São Paulo, SP, Brazil.
2. Nurse. Master and Doctor in Nursing by the Nursing School, University of São Paulo (USP). Professor of the Graduation and Post-Graduation Courses, School of Nursing, Israelite Hospital Albert Einstein (FEHIAE). Director of Publication and Divulgation of the Brazilian Association of Operating Center, Anesthetic Care and Material and Sterilization Center Nurses (SOBECC). São Paulo, SP, Brazil.

Submitted in September 11, 2012.
Accepted for publication in January 04, 2013.

Correspondence to:
Rachel de Carvalho
Av. Prof. Francisco Morato, 4293 - Butantã
01409-001 São Paulo, SP.
Phones (11) 2151-1001 - (11) 99545-9948
E-mails: rachel@einstein.br or anacarolinasancho@hotmail.com

regard to pain evaluation and control are critical for children's recovery. Nurses know the tools available to evaluate pain in children[6], however there is brittleness with regard to pain control, which is limited to pharmacological methods[7]. Most popular scales to evaluate pediatric pain are the behavioral scale, the faces scale, the visual analog scale and the numerical scale[6,8].

Pain control involves pharmacological and non pharmacological techniques. Pharmacological techniques may involve the prescription of regular and rescue analgesics, as well as non pharmacological techniques, always directing treatment according to each patient's needs, considering the specificities of their developmental stage[8,9].

Due to the importance of the nurse in detecting and managing postoperative pain, this study aimed at investigating nursing interventions in children submitted to anesthetic-surgical procedures.

The objectives were to check the incidence of pain and the changes in vital parameters, as well as prescribed and administered analgesics to pre-school children in the immediate postoperative period of general surgeries, during their stay in the anesthetic care unit (ACU).

METHOD

This was a field, descriptive-exploratory and prospective research, with quantitative data analysis, in a ACU with 20 beds, which supply 12 operating rooms and assist, in average, 150 pediatric patients per month, of a large general private hospital from the city of São Paulo.

Sample was made up of 32 pre-school children, that is, aged between 3 and 6 years, submitted to general surgeries and admitted to the ACU, who were included after the signature of the Free and Informed Consent Term (FICT) by their guardians.

Data were collected with regard to children, such as gender and age, type of surgery, induced anesthesia and duration of both, pain and vital signs evaluation every 15 minutes, identification of prescribed analgesics and description of non pharmacological interventions used to relieve pain.

Data were submitted to statistical analysis, with calculation of mean, median and standard deviation for vital sign changes and pain scores, and are presented as tables.

This study was approved by the Research Ethics Committee (REC) of the institution (protocol CAAE - 0044.0.028.000-2011).

RESULTS

Most children were males (59.4%), with predominance of 4 years of age (43.8%).

Most widely used anesthesia was general anesthesia, being also used general anesthesia associated to epidural and local blockade. Anesthesia duration has varied from 25 to 200 minutes with predominance of 45 to 60 minutes, followed by 65 to 80 minutes (Table 1).

Most prevalent surgeries were simple adenoidectomy or associated to other surgery and postectomy (Table 2).

Surgery duration has varied from 10 to 170 minutes with prevalence of surgeries lasting from 25 to 40 minutes, followed by sugeries lasting from 45 to 60 minutes (Table 3).

Table 1 – Types and length of anesthesia.

Types of Anesthesia	n	%
General	28	87.5
General + epidural	02	6.25
General + local	02	6.25
Length (minutes)		
Up to 40	05	15.6
41 to 60	09	28.1
61 to 80	07	21.9
81 to 100	03	9.4
101 to 200	08	25.0
Total	32	100.0

Table 2 – Types of surgeries.

	n
Postectomy	05
Adenotonsyllectomy	05
Adenotonsyllectomy + turbinoplasty	01
Adenoidectomy	03
Adenoidectomy associated to other surgery	07
Inguinal hernia repair	03
Umbilical hernia repair	01
Strabismus correction	02
Others	05
Total	32

Table 3 – Surgeries length.

Surgeries Length (min)	n	%
05 a 20	4	12.5
21 a 40	12	37.5
41 a 60	7	21.9
61 a 80	3	9.4
81 a 200	62	18.7
Total	32	100.0

ACU stay length was 45 minutes for 31% of children and 40 minutes for 16% of them.

There were no major vital sign changes. Mean heart rate (HR) was 103.4 ± 17.9 bpm and respiratory rate (RR) was 20.2 ± 0.4 breaths per minute; temperature (T) was 34.7 ± 0.6º C and mean oxygen saturation ($SatO_2$) was 96.2 ± 2.3%.

Vital signs were stable during 40 to 45 minutes of children's stay in the ACU because pain intensity was mild (Table 4), since only two children had to be medicated for pain. In one of them, pain intensity was 4, 30 minutes after admission to ACU. This child was medicated with oral 16 mg paracetamol and, at 45 minutes, the child was pain-free. The other patient had pain intensity of 3, 15 minutes after admission to ACU and was medicated with intravenous 1 mg nalbuphine; at 30 minutes, patient was pain-free. Six types of analgesics were prescribed, being dipirone the most prescribed (46.43%), followed by paracetamol (39.29%).

Most children (78.1%) had an escort, father or mother, during ACU stay, to decrease fear and possibly pain, being this considered a non pharmacological strategy. Another non pharmacological

Table 4 – Surgery duration.

ACU time	Pain
Admission	0.0 ± 0.0
15 min	0.1 ± 0.6
30 min	0.2 ± 0.9
45 min	0.0 ± 0.0

Values in mean ± SD; ACU = anesthetic care unit.

strategy is to allow children to take some toy that will make them feel safer, and 21.9% of them have taken a toy to the hospital.

DISCUSSION

When evaluating children's pain, professionals have to take care with wrong beliefs, such as the idea that they do not feel the same pain as adults, or that they will not remember of their pain experience. There are studies showing the use of analgesics in sub-therapeutic doses in pediatric patients, especially in surgical cases, when pain may be severe because there is tissue injury and handling of structures and organs[2,3].

At any age, surgery is a situation of anxiety and fear of the unknown, but when it comes to children going through a surgical procedure, very often one neglects the need to explain, in a simple and clear way, what will happen to them to try to decrease their anxiety and fear. The efficient and quality assistance in the recovery process is also mandatory, always and in any situation[10].

Most patients of this study were males, with predominance of 4 years of age, similar to other study including children submitted to surgeries classified by the authors as "simple", such as hernia correction, appendicitis and urological surgeries, where most of patients were males[2].

Most used anesthetics in children are inhalational anesthetics, followed by intravenous anesthetic induction. Most surgeries were performed under general anesthesia and one may consider that all children were submitted to this type of anesthesia; in some cases, however, the anesthesiologist has associated general to epidural or local anesthesia[11].

Anesthesia duration varies according to surgery length, and the anesthetic level varies according to surgery complexity and length and, since each body reacts differently to anesthetic drugs, anesthesia duration may also vary, even in cases of surgeries of the same size[3,12]. Our study has shown broad variation on anesthesia time, between 25 and 200 minutes, with prevalence of 45 to 60 minutes. Surgery time has varied from 5 to 180 minutes, with highest percentage between 25 and 40 minutes, since surgeries were outpatient surgeries size I.

These were elective, small procedures with decreased likelihood of fluid and blood losses during the procedure, which was the expected result since the focus was children admitted to the ACU of an outpatient operating center of a general hospital.

During their ACU stay to control vital signs until total recovery from residual anesthetic effects, pain is in general the first referred symptom, and there may also be psychomotor agitation due to residual general anesthesia sedation.

In our study, pain intensity was mild, since only two children have referred pain, which was totally controlled with drug therapy.

A study evaluating children with postoperative pain1 has shown that drug treatment requires further attention, since some analgesics may induce or worsen a possible respiratory depression in the immediate postoperative period.

The choice of analgesics to manage postoperative pain varies according to surgery complexity, to the choice of anesthesiologists and surgeons, as well as to patient's pain level. Acute pain responds well to anti-inflammatory analgesics which have fewer side effects. In our study, most prescribed analgesics were dipirone and paracetamol, which do not induce respiratory depression, followed by nalbuphine which, although being an opioid, has low potential to depress respiratory centers, although inducing a certain level of sedation[13].

Other factors contributing to the low incidence of pain were that surgeries were less complex, patients received intravenous analgesics before leaving the operating room, and the use of local or regional anesthesia associated to general anesthesia.

With regard to non pharmacological measures, our study has shown the presence of one parent and of children's preferred toy, which is in line with a study4 which stresses the need to promote comfort and familiarity to children, since they are in an unknown place, in a different and stressing situation, such as the postoperative period. Calm and comfort provided to children by the presence of one parent and a toy have contributed for them to relax, because holding their preferred toy has brought some tranquility to that difficult moment.

CONCLUSION

The incidence of pain in pre-school children in the immediate postoperative period of general surgeries was low, vital sign changes were not significant and most prescribed analgesics were dipirone, paracetamol and nalbuphine.

REFERENCES

1. Ribeiro FA, Carvalho R. Ocorrência de dor no período pós-operatório imediato de crianças submetidas à amigdalectomia. Rev Dor. 2010;11(1):50-4.
2. Tacla MTGM, Hayashida M, Lima AG. Registros sobre dor pós-operatória em crianças: uma análise retrospectiva de hospitais de Londrina, PR, Brasil. Rev Bras Enferm. 2008;6(3):289-95.
3. Chaves LD, Pimenta CAM. Controle da dor pós-operatória: comparação entre métodos analgésicos. Rev Latino-am Enferm. 2003;11(2):215-9.
4. Sousa FAEF. Dor: o quinto sinal vital. Rev Latino-am Enferm. 2002;10(3):446-7.
5. Queiroz FC. Manejo da dor pós-operatória na enfermagem pediátrica: em busca de subsídios para aprimorar o cuidado. Rev Bras Enferm. 2007;60(1):87-91.
6. Kanai KY, Fidelis WMZ. Conhecimento e percepção da equipe de enfermagem em relação à dor na criança internada. Rev Dor. 2010;11(1):20-7.
7. Silva MS, Pinto MA, Gomes LMX, Barbosa TLA. Dor na criança internada: a percepção da equipe de enfermagem. Rev Dor. 2011;12(4):314-20.
8. Pereira LV, Souza FAEF. Mensuração e avaliação da dor pós-operatória: uma breve revisão. Rev Latino-am Enferm. 1998;6(3):77-84.
9. Pimenta CAM. Controle da dor no pós-operatório. Rev Esc Enf USP. 2001;35(2):180-3.
10. Huerta Edel PN. Preparo da criança e família para procedimentos cirúrgicos: intervenção

de enfermagem. Rev Esc Enf USP. 1996;30(2):340-53.

11. Tardelli MA, Joaquim EHG, Iwata NM, et al. Anestesia com sevoflurano e halotano em crianças. Estudo comparativo. Rev Bras Anestesiol. 1997;47(1):1-9.
12. Imbelloni LE, Vieira EM, Beato L, et al. Raquianestesia com a mistura enantiomérica de bupivacaína a 0,5% isobárica (S75-R25) em crianças com idades de 1 a 5 anos para cirurgia ambulatorial. Rev Bras Anestesiol. 2002;52(5):652-7.
13. Imbeloni LE, Maia C P. Efeitos cardiorrespiratórios da nalbufina e morfina como medicação pré-anestésica em pacientes hígidos. Rev Bras Anestesiol. 1986;36(3):203-6.