Post-surgery pain in children submitted to surgical procedures

Dor no pós-operatório em crianças submetidas a procedimentos cirúrgicos

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RESUMO

O objetivo deste estudo foi avaliar os fatores sociodemográficos, clínicos e cirúrgicos relacionados com a intensidade da dor no pós-operatório de crianças. Estudo descritivo e exploratório com abordagem quantitativa, realizado com 31 crianças de cinco a 12 anos nas primeiras 72 horas de pós-operatório utilizou-se um questionário com perguntas clínicas, sociodemográficas e as escalas de faces e numérica de dor. Foram realizados os testes Qui-quadrado e Exato de Fisher para a análise dos resultados. Evidenciou-se que o tipo de cirurgia realizada influencia significativamente (p-valor= 0,036) na presença de dor nas 24h, após a cirurgia. A intensidade da dor com o tipo de cirurgia nos dois primeiros dias de pós-operatório apresentou valor significativo (p-valor=0,044) no primeiro dia e (p-valor=0,021) no segundo. No 2° dia de internação, a variável sexo (feminino) mostrou diferença significativa com relação à média de intensidade de dor (p-valor=0,032) e no 3° dia, a característica clínica que se fez significativa foram os antecedentes patológicos (p-valor=0,031) quando relacionado à intensidade da dor. Conclui-se que as variáveis sociodemográficas, clínica e cirúrgica interferem na presença e intensidade de dor em crianças no pós-operatório, principalmente tipo de cirurgia, sexo e antecedentes patológicos.

Palavras-chave: Criança; Dor; Dor pós-operatória; Perfil de saúde.

ABSTRACT

The aim of this study is evaluating the socio-demographic, clinical and surgical factors related to the pain intensity in the children´s post-surgery. Descriptive and exploratory study with a quantitative approach conducted with 31 five to twelve-year-old children in the first 72 hours of the post-surgery, where it was applied a questionnaire with clinical and socio- demographic questions, and the face and numerical scales of pain. The Chi-square and the Fischer Exact tests were used for the analysis of the results. It was observed that the kind of surgery performed influences significantly (p-value= 0.036) in the presence of pain in the first 24 hours, after the surgery. The intensity of pain with the kind of surgery in the first two post-surgery days presented a significant value (p-value=0.044) in the first day and (p-value=0.021) in the second day. In the 2nd day of admission the variable sex (female) showed a significant difference in relation to the intensity of pain average (p-value=0.032), and in the 3rd day the significant characteristic was the pathological background (p-value=0.031) when related to the intensity of pain. It is concluded that socio-demographic, clinical and surgical variables interfere in the presence and intensity of pain in children in post-surgery, especially kind of surgery and pathological background.

Keywords: Child; Health profile; Pain; Postoperative pain.

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INTRODUCTION

There is a high prevalence of pain and deficiency in its monitoring in the different hospitalization units, especially in the surgical clinics, where there is a high pain index [1]. Currently, many health institutions have adhered to the routine evaluation of pain as the 5th vital sign, in order to stimulate better conducts for pain relief [2].

Pain is explained as a perception of an unpleasant sensation coming from an actual or potential tissue injury [3]. It is a universal problem and transversal to several diseases because it is subjective and often difficult to describe. When its treatment is incorrect, it leads to several physical, psychological and social complications [4].

Children who undergo surgical processes suffer both from the fear of the presence and from the discomfort generated by the pain. This evidences the need for the proper performance of health professionals to avoid that pain leads to complications in recovery or to cause sequels in child development [5].

The literature shows that many factors influence the presence and intensity of postoperative pain, such as location and time of surgery, type of incision, surgical size, intensity of surgical trauma, previous operations on the site, type of anesthesia used, adequacy of the postoperative analgesia, besides the physical and psychological state of the patient [6].

Therefore, it is the duty of the health professional to consider the surgical and clinical aspects that influence the intensity of pain for proper prevention and treatment [2]. For, the detailed understanding of the different perioperative factors that influence the presence and intensity of the painful phenomenon contribute to its more effective management [7].

The need to identify the factors that significantly influence the postoperative pain of the child may contribute information to the adoption of more conducive behaviors for its handling. The objective of this study was to evaluate sociodemographic, clinical and surgical factors that may be related to the intensity of postoperative pain in children.

METHOD

A descriptive and exploratory study with a quantitative approach, developed from September to December 2016, in the pediatric hospitalization of a high complexity public hospital in Aracaju, Sergipe, Brazil.

The sample consisted of children aged 5 to 12 years, in the postoperative period of any surgical procedure and with a Pediatric Glasgow Coma Scale score of 15.

Four children were excluded because they did not meet the age criterion. Data collection took place after the children's medical records were selected and the legal guardian was authorized. The documentary analysis of the medical records and the completion of the research form were performed. The children were evaluated after the first 24 to 72 hours after the surgery, one hour before administration of the prescribed analgesic.

The employee data collection instrument consisted of two parts. The first one was based on sociodemographic data, and the second was clinical, surgical and pain intensity data. In order to measure the pain intensity, the numerical visual scale (NVA) was used, in which: zero - absence of pain; 1 to 3 - mild pain; 4 to 7 - moderate pain and 8 to 10 - intense pain and the scale of Faces adapted from the Turma da Monica where there are images of faces with different intensities of pain, for children who did not understand the numerical scale.

The study was approved by the Research Ethics Committee of the Federal University of Sergipe (CAEE 48360115300005546), opinion 1227925 and followed the recommendations of Resolution 466/2012 of the National Health Council. The Free and Informed Consent Form (TCLE) was signed by one of the legal guardians of the child and the Term of Assent was signed by the child. The Statistical Package for Social Sciences software version 20.0 was used for data analysis. Univariate descriptive analysis was performed, categorizing the extracted data with the respective frequencies and percentages, presented in the form of tables. An inferential analysis was performed with the cross between pain and pain intensity variables with sociodemographic and clinical variables. To verify the association between such variables, the Chi-square test and Kruskal Wallis test were used, when the observed frequency was less than 5 the Fisher's exact test was used.

RESULTS

Thirty-one children participated in the study on the first postoperative day, 27 in the second and 21 in the third, 58% male, 35% aged 8 to 9 years old and 77% attend elementary school. Seventy-eight percent did not present any pathological antecedents and 90% did not perform surgery previously. The appendectomy was the most performed surgery (55%) with incision in the region of the right iliac fossa.

Regarding factors associated with the occurrence of postoperative pain in children who were submitted to surgical procedures, it is verified that only the type of surgery performed significantly influences (p-value = 0.036), with the fact that the child experiences pain in the 24 hours after the postoperative period (Table 1).

The greater intensity of pain before the use of the analgesic drug was more frequent in appendectomy on the first two days of post-operative hospitalization on the first day (p-value = 0.044) and on the second (p-value = 0.021) (Table 2)

TABLE 1 – Association of sociodemographic, clinical and surgical variables in relation to the presence of pain per day of hospitalization, Aracaju-Sergipe, 2016.

Variables	Pain								
	1st day			2nd day			3rd day		
	S	N	P value	S	N	P value	S	N	P value
Sex									
Male	8	10	0,878	2	14	0,187	7	5	1,000
Female	7	6		4	7		4	4	
Age group (years old)									
4 to 5	1	3	0,185	0	3	0,389	3	0	0,086
6 to 7	4	2		1	4		2	1	
8 to 9	7	4		4	6		2	6	
10 to 11	1	6		0	6		1	4	
12	2	1		1	2		1	0	
Pathological antecedents									
Respiratory	1	4	0,332	1	3	0,420	1	3	0,591
Cardiopathy	1	0		0	1		1	0	
Others	1	0		1	0		0	0	
Nothing	12	12		4	17		7	8	
Previous surgery									
Yes	2	1	0,599	1	2	0,545	0	1	1,000
No	13	15		5	19		9	10	
Surgery									
Appendectomy	11	6	0,036*	3	13	0,059	5	7	0,322
Orthopedic: upper limb	3	3		1	3		0	2	
Orthopedic: lower limb	1	1		2	0		2	0	
Others	0	6		0	5		2	2	
Incision site									
Right iliac fossa	11	6	0,082	3	13	0,431	5	7	0,477
Upper limb	3	3		1	3		0	2	
Lower limb	0	1		1	0		1	0	
Others	1	6		1	5		3	2	

* p-value <0.05; S = yes; N = no; Chi-square test.

Regarding pain intensity before analgesic use, on the 2nd day of hospitalization, the variable gender (female) presented pain greater pain scores (p-value = 0.032). On the 3rd day, the clinical characteristic that showed significant pathological antecedents (p-value = 0.031), children who had no pathological antecedents presented higher pain intensities (Table 3).

DISCUSSION

The presence of pain in the postoperative period is natural, but it is necessary to adopt ducts for its relief, especially in children. For this, it is essential to have an extensive evaluation of the factors related to the presence and intensity of this population, facilitating the planning of care.

In a study by Groenewald et al. [8] patients admitted to outpatient services presented lower pain rates than those admitted to surgical services. Also, in some surgical services, moderate to severe pain was related to pediatric surgery.

In the present study, the greatest presence and pain scores occurred in the first two postoperative days of appendectomy. Corroborating with the study, there is research that evidences appendectomy-like surgery as a factor for the high frequency of postoperative pain episodes [9-10]. Perhaps because it is a region with many nerve endings, by the pressure of flatulence in the place and by a greater restriction of mobility in comparison to other surgeries. There is a significant association between general surgery and the high prevalence of pain [11]

On the second day of hospitalization, the female sex presented a significant difference (p-value = 0.032) in relation to the mean intensity of pain, showing that this group is related to the presence and intensity of pain that can be increased with the increase of the hospitalization period. In a study with adults who underwent abdominal surgery, there was a predominance of mild to moderate pain in men and moderate to severe pain in women [11]. Also in Moura et al. [12], the frequency of pain on the first postoperative day was higher in girls, which may be related to the fact that girls report the symptom more frequently than boys or to less pain tolerance, since female subjects have lower pain threshold and different response to pain stimuli [13].

On the third day, the clinical characteristic that was significant was pathological antecedent (p-value = 0.031), children who had no pathological antecedents had higher pain intensities. This fact can be attributed to the psychological

TABLE 2 – Association of sociodemographic, clinical and surgical variables in relation to pain intensity per day of hospitalization, Aracaju-Sergipe, 2016

Variables	Intensity of pain on the numerical and face scale								
	1st Day			2nd Day			3rd Day		
	G1	G2	P value	G1	G2	P value	G1	G2	P value
Sex									
Male	10	8	0,878	15	1	0,273	7	1	1,000
Female	6	7		8	3		11	1	
Age group (years old)									
4 to 5	3	1	0,526	3	0	0,644	2	1	0,642
6 to 7	3	3		4	1		3	0	
8 to 9	4	7		8	2		7	1	
10 to 11	5	2		6	0		5	0	
12	1	2		2	1		1	0	
Pathological antecedents									
Respiratory	4	1	0,333	4	0	0,355	4	0	1,000
Cardiopathy	0	1		1	0		1	0	
Others	0	1		0	1		-	-	
None	12	12		18	3		13	2	
Previous surgery									
Yes	1	2	0,599	2	1	0,384	1	0	1,000
No	15	13		21	3		17	2	
Surgery									
Appendectomy	7	10	0,044*	15	1	0,021*	11	1	0,400
Orthopedic on upper limb	2	4		3	1		2	0	
Orthopedic on lower limb	1	1		0	2		1	1	
Others	6	0		5	0		4	0	
Incision site									
Right iliac fossa	7	10	0,102	15	1	0,082	11	1	0,653
Upper limb	2	4		3	1		2	0	
Lower limb	1	0		0	1		1	0	
Others	6	1		5	1		4	1	

* p-value <0.05. G1: no pain or mild pain; G2 = moderate pain and intense pain; Chi-square test

TABLE 3 – Pain intensity related to sociodemographic, clinical and surgical variables per day of hospitalization, Aracaju-Sergipe, 2016

Variables	Pain intensity in the numerical scale of pain and faces								
	1st Day			2nd Day			3rd Day		
	M	DP	P value	M	DP	P value	M	DP	P value
Sex									
Male	2,5	2,9	0,266	0,5	2,0	0,032*	2,3	2,8	0,337
Female	3,9	3,7		1,4	2,2		1,7	2,6	
Age group (years old)									
4 to 5	1,0	1,4	0,405	0,0	0,0	0,315	3,6	3,7	0,263
6 to 7	3,5	3,6		0,2	0,4		2,3	1,5	
8 to 9	4,4	3,8		1,4	2,3		2,1	2,8	
10 to 11	1,7	2,9		0,0	0,0		0,6	0,9	
12	3,3	3,1		2,7	4,6		0,0	-	
Pathological antecedents									
Respiratory	1,4	2,1	0,728	0,0	0,0	0,09	0,3	0,5	0,031*
Cardiopathy	4,0	-		0,0	-		0,0	-	
Others	6,0	-		8,0	-		-	-	
None	3,3	3,6		0,7	1,7		2,5	2,8	
Previous Surgery									
Sim	4,3	3,8	0,550	2,7	4,6	0,491	0,0	-	0,243
No	2,9	3,4		0,6	1,6		2,0	2,7	
Surgery									
Appendectomy	3,6	3,3	0,159	0,4	0,8	0,186	1,8	2,5	0,167
Orthopedic on upper limb	3,8	3,1		2,5	3,8		1,5	0,7	
Orthopedic on lower limb	5,0	7,1		3,5	4,9		5,9	4,9	
Others	0,1	0,4		0,0	0,0		0,5	1,0	
Incision site									
Right iliac fossa	3,6	3,3	0,356	0,4	0,8	0,464	1,8	2,5	0,764
Upper limb	3,8	3,1		2,5	3,8		1,5	0,7	
Lower limb	0,0	-		0,0	-		2,0	-	
Others	1,6	3,7		1,2	2,8		2,2	3,9	

* p-value <0.05; M = mean pain; SD = standard deviation; Kruskal Wallis test.

trauma caused by the first contact with the pain linked to the hospitalization process that can generate stress, potentializing the suffering of the child. Von Baeyer et al. [14] showed that previous experience of pain reduces their level in other hospitalizations. For, contrary to what one thinks, children have good memory for painful events [15].

The pain of hospitalized children, when treated improperly, compromises their quality of life [16]. Adequate evaluation and recording of pain are indispensable to inhibit surgical complications and patient suffering [17]. Nursing professionals play a very important role in the relief of pain presented by hospitalized individuals, since they are directly related to the care during the whole period and hospital care, being responsible for the aid in choosing the analgesic to be administered [18].

However, most nursing professionals have insufficient knowledge about the identification, quantification and therapeutics of pain [19]. It is worth reflecting, however, that accepting tenuous limits of non-compliance in health care can be dangerous and counterproductive [20]. Universities must implement discipline in physiopathology and pain therapy in their curriculum. In addition, hospitals should provide training frequently in order to increase knowledge about pain, especially in severe individuals [19].

CONCLUSION

The study made it possible to conclude that children who undergo appendectomy surgery have a greater presence and intensity of pain in the postoperative period, and the intensity is also increased in children with no pathological history and who are female.

The small size of the sample evaluated and the non-evaluation for a longer period of time is considered a limiting factor of the study. We suggest that longitudinal studies should be developed at different ages. This study aims to contribute information about the factors that interfere in the pain of the child in a surgical procedure and to stimulate the creation of strategies for its management.

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