ORIGINAL ARTICLE

Postoperative pain and analgesia: analysis of medical charts records*

Dor e analgesia pós-operatória: análise dos registros em prontuários

Roberta Meneses Oliveira[1], Ilse Maria Tigre de Arruda Leitão[1], Lucilane Maria Sales da Silva[1], Paulo César de Almeida[1], Sherida Karanini Paz de Oliveira[2], Milena Barbosa Pinheiro[2]

*Received from the Post-Graduation Program in Nursing and Health Clinical Care, State University of Ceará, Fortaleza, CE, Brazil.

ABSTRACT

BACKGROUND AND OBJECTIVES: Although being the most prevalent acute pain and its clinical expression being associated to morbidity and mortality, postoperative pain is still underdiagnosed and undertreated. This study aimed at analyzing records of postoperative pain and analgesia of admitted patients' medical charts.

METHODS: This is a documental, transversal and quantitative study carried out in a private hospital of Fortaleza/CE. Sixty medical charts of patients were analyzed during the first 24 postoperative hours. A checklist was used to evaluate pain records in three moments (immediate postoperative period in the post-anesthetic care unit, 1 hour after surgery and subsequent hours). We have also analyzed medical and nursing prescriptions, daily evolutions and clinical monitoring sheets. Descriptive statistical analysis was used and Chi-square test for linear trend (c^2) was applied to compare patients' response to analgesia in different pain evaluation moments.

RESULTS: Records on pain and analgesia were found in 46.6% medical charts and were limited to describing intensity, location and analgesia. The prevalence was female patients (55%), older than 59 years (31.6%), submitted to general surgeries (46.6%), with moderate to severe abdominal pain (45%) in the first evaluation, evolving to mild or no pain in hours subsequent to analgesia. From those with pain, 45% have received no analgesia. There has been statistically significant relation between pain intensity and postoperative time ($p<0.001$).

CONCLUSION: Findings about underprescription of postoperative analgesics are worrisome. Professionals should be involved in the adequate handling and recording of this type of pain, promoting better analgesic approaches and higher patients' satisfaction.

Keywords: Analgesia, Nursing, Pain measurement, Postoperative pain, Records with the subject.

1. State University of Ceará, Fortaleza, CE, Brazil.
2. Federal University of Ceará, Fortaleza, CE, Brasil.

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Correspondence to:
Roberta Meneses Oliveira
Rua Lídia Brígido, 837 – Bairro Cidade dos Funcionários
60821-800 Fortaleza, CE, Brasil.
E-mail: menesesroberta@yahoo.com.br

RESUMO

JUSTIFICATIVA E OBJETIVOS: Apesar de ser o tipo mais prevalente de dor aguda e de sua expressão clínica estar associada à morbimortalidade, a dor pós-operatória persiste subdiagnosticada e subtratada. O objetivo deste estudo foi analisar registros sobre dor e analgesia pós-operatória em prontuários de pacientes internados.

MÉTODOS: Estudo documental, transversal, de natureza quantitativa, realizado em hospital privado de Fortaleza/CE. Analisaram-se 60 prontuários de pacientes nas primeiras 24 horas de pós-operatório. Utilizou-se *check-list* para avaliação dos registros sobre avaliação da dor em três momentos (pós-operatório imediato na sala de recuperação pós-anestésica, após uma hora de cirurgia e nas horas subsequentes). Também foram analisadas prescrições médicas e de enfermagem, evoluções diárias e folha de monitorização clínica. Realizou-se análise estatística descritiva e aplicou-se teste Qui-quadrado de tendência linear (χ^2) para comparar respostas dos pacientes à analgesia nos diferentes momentos de avaliação da dor.

RESULTADOS: Encontrou-se registro sobre dor e analgesia em 46,6% dos prontuários, limitado à descrição de intensidade, localização e analgesia. Prevaleceram pacientes do sexo feminino (55%), maiores de 59 anos (31,6%), submetidos a cirurgias gerais (46,6%), com dor abdominal (45%) moderada a intensa na primeira avaliação, evoluindo para dor leve ou ausência de dor nas horas subsequentes à analgesia. Daqueles que apresentaram dor, 45% não receberam analgesia. Comprovou-se relação estatisticamente significativa entre intensidade da dor e tempo de pós-operatório ($p<0,001$).

CONCLUSÃO: São preocupantes os achados relacionados à subprescrição de analgésicos no pós-operatório. Os profissionais devem se envolver no manuseio e no registro apropriado desse tipo de dor, promovendo melhores condutas analgésicas e maior satisfação aos pacientes.

Descritores: Analgesia, Dor pós-operatória, Enfermagem, Medição da dor, Registros com o assunto.

INTRODUCTION

In hospitals, technological advances, therapeutic sophistication and further qualification of professionals have generated major results with regard to shorter hospitalization time

and less postoperative adverse events, resulting in higher satisfaction of admitted patients.

Nevertheless, there is little evolution in adequate pain management during this period. Postoperative pain is the most prevalent acute pain, experienced by thousands of people worldwide, and being moderate or severe in 29.7 and 10.9% of cases, respectively. Its somatic and psychic expression may be associated to morbidity, mortality and hospitalization, with social and economic repercussions[1].

When not adequately controlled, patients are predisposed to postoperative pain (POP) chronicity, with considerable impact on their quality of life (QL). Authors explain that not all surgical patients will develop chronic POP, but progresses in the biological understanding of this pain include scientific findings of vulnerability factors, with substantial impact on spinal cord, increasing pain amplification mechanisms, maybe to irreversible levels[2].

Notwithstanding current knowledge about negative POP repercussions and its chronicity, this is still underdiagnosed and undertreated by health professionals, which represents an adverse event neglected in the clinical practice. It is known that pain has negative impacts and, at the same time, it is recognized that not all pains can be prevented. However, POP may be minimized, prevented or decreased. So, pain as an adverse event may be a controversial concept for health caregivers and managers, but there is nothing controversial from patients' perspective[3].

Within this perspective, many health institutions are currently implementing in their daily routine the evaluation of pain as the fifth vital sign, with the application of unidimensional scales, such as the visual analog scale (VAS), aiming at favoring better approaches to relieve pain and at preventing its inadequate evaluation by health professionals.

A mandatory activity for adequate pain evaluation and handling is its thorough recording in medical charts and shift change documents. Such records allow data to be shared by the multiprofessional team, providing better patients' assistance and satisfaction with analgesia. If there are systematization, evaluation and thorough records, pain is better identified and adequately treated[4].

This study aimed at analyzing records on postoperative pain and analgesia from medical charts of hospitalized patients.

METHODS

This is a documental, transversal and quantitative study generated from part of a conclusion project of the Clinical Nursing Specialization Course, called "*Pain as the fifth vital sign in nursing practice: development, implementation and evaluation of a protocol".* Data shown are related to the evaluation stage, where records on pain and analgesia in medical charts of postoperative patients were analyzed.

The study was carried out in a private tertiary hospital of Fortaleza/CE, which assists different patients submitted to numerous treatments and procedures, among them: hemodynamic and cardiologic services, abdominal and cardiologic emergency, plastic, general and traumatological surgeries. It has 64 beds in postoperative, clinic and semi-intensive care units, in addition to 14 beds in clinical intensive care unit. Patients are primarily users of health insurance, social security and private systems.

Data were collected during two months, by analyzing medical charts of 60 patients chosen by accessibility, who were in the first 24 postoperative hours and were hospitalized in two specific units, corresponding to 16 beds.

Patients had their anonymity preserved and data were exclusively used for statistical and research purposes.

For documental analysis, a checklist based on updated literature about pain evaluation was developed and validated by an anesthesiologist specialized in Pain Clinic. Such document had patient's identification data and data regarding type of surgery, anesthesia, surgical duration, implemented analgesia and pain evaluation by means of VAS scores attributed by patients and recorded in medical charts by nurses in three moments (immediate postoperative period in the post-anesthetic care unit (PACU), one hour after surgery and in subsequent hours).

The study has also evaluated records of nursing care prescriptions, of daily nurses' evolution and of clinical monitoring sheets, where pain and remaining vital signs scores were recorded in the evaluation scale.

Before medical charts analysis, pain as the fifth vital sign had been implemented by the institution with VAS, because it is easy to be used by professionals and to be understood by patients.

Data were submitted to descriptive statistical analysis and absolute and relative frequencies were presented in tables for better understanding and visualization. Chi-square test for linear trend (χ^2) was applied to compare patients' response to analgesia in three different pain evaluation moments. Results are shown in tables.

This project was approved by the Research Ethics Committee, process 07336264-6.

RESULTS

Table 1 shows characteristics of the 60 patients in the postoperative period, such as age group, gender, type of surgery, POP location and analgesia used.

From 60 medical charts, only 28 (46.6%) had records about pain, being eight (28.6%) with records of no pain. For remaining 32 (53.4%), there have been no records about pain.

As to specificities of pain records of nursing evolutions, nurses were limited to detail VAS-based intensity, location and analgesia administered for each case. However, there have been no records describing other pain characteristics, such as quality, improving and worsening factors, repercussions on hospitalization, related physiological and behavioral changes and satisfaction with analgesia, among others.

As to analgesics prescribed in medical charts where there

were pain records, most were NSAIDS and opioids, followed by simple analgesics. It is worth stressing that the underprescription of analgesics was clear in this sample.
Table 2 summarizes pain scores attributed by the 28 patients whose medical charts had pain records, which were written down by nurses in clinical monitoring and nursing evolution sheets during the first 24 postoperative hours.

Table 1. Patients' characteristics with regard to age, type of surgery, pain location and analgesia used

Variables	n	(%)
Age group (years) (n=60)		
11 - 22	08	(13.3)
23 - 34	16	(26.6)
35 - 46	10	(16.6)
47 - 58	07	(11.6)
> 59	19	(31.6)
Gender (n=60)		
Female	33	(55.0)
Male	27	(45.0)
Type of surgery (n=60)		
General	28	(46.6)
Orthopedic	16	(26.6)
Plastic	09	(15.0)
Urologic	04	(6.6)
Vascular	03	(5.0)
Postoperative pain location (n=20)		
Abdomen	09	(45.0)
Lumbar spine	03	(15.0)
Femur	02	(10.0)
Knee	02	(10.0)
Shoulder	01	(5.0)
Ankle	01	(5.0)
Hand	01	(5.0)
Hip	01	(5.0)
Analgesics used (n=20)		
None	09	(45.0)
Non-steroid anti-inflammatory	04	(20.0)
Opioid	04	(20.0)
Simple analgesics	03	(15.0)

Table 2. Distribution of patients according to postoperative pain intensity evolution (n=28)

Evaluated Moments	No pain + mild pain		Moderate pain + severe pain		Total	
	n	%	n	%	n	%
Evaluation IPO (PACU)	13	46.4	15	53.6	28	100.0
Evaluation IPO (up to 12h after surgery)	19	67.9	09	32.1	28	100.0
Evaluation in subsequent hours (up to 24h)	26	92.9	02	7.1	28	100.0

IPO: immediate postoperative, PACU: post-anesthetic care unit, $p<0.001$ (χ^2 for linear trend).

DISCUSSION

Medical charts analysis has shown prevalence of females aged above 59 years. Results may be related to the fact that females and the elderly access more the health system as compared to males and young adults, considering that in that age group there are more diseases and injuries requiring surgical intervention. With regard to female gender, in addition to being submitted to general corrective surgeries, they in general look for cosmetic surgeries aiming at remaining young.
A similar study carried out with 187 patients in surgical wards has analyzed the magnitude of postoperative pain taking into consideration gender and type of surgery and has found demographic results close to our study: most patients were females (128, 66.8%) with mean age of 45.8 years and 47 (25.1%) were 60 years old or above[5].
Table 1 has shown that general surgeries were the most prevalent. Among those included in this specialty there are: gastrectomy, videolaparoscopic cholecystectomy, umbilical hernia repair, gastroplasty, exploratory laparotomy, colectomy and appendectomy, among others.
As to location, predominance of the abdominal region is probably due to the fact that most patients had been submitted to general surgeries. Other authors[5] have also found the same result. When associating POP to type of surgery, patients submitted to general surgeries (inguinal and umbilical hernia repair, conventional and laparoscopic cholecystectomy and exploratory laparotomy) have reported more severe pain as compared to other surgeries.
Analyzing medical charts with pain records, a worrisome result of this study was that most patients have received no analgesia. On the other hand, it is known that tissue injury inherent to surgical procedures in general results in acute postoperative pain which, in some cases, may be very severe with major complications.
Such findings are in line with a study on pain intensity and analgesic suitability[7] where three fourths of patients have received no analgesic drug, although in their majority they had moderate to severe pain. From 100 interviewed patients, the vast majority has referred pain (90, 90.0%) and 75 (75%) have received no analgesic drug.
This is an alarming fact leading to the rethinking of postoperative care quality because patients, although evolving with pain, are not receiving adequate attention directed to their complaints and to adequate analgesia.
Investigators agree, stating that in spite of analgesic drugs advance, of their different routes of administration and of non-pharmacological techniques to relieve pain, this is still considered a major postoperative problem[8].
In addition to the need to administer analgesics to painful patients, one should take into consideration intensity, quality, improving and worsening factors, characterization by descriptors, losses, pain location and duration, so that the best analgesic is administered[4].
In our study, among those receiving analgesia, the prescription of, respectively, non-steroid anti-inflammatory drugs (NSAIDS),

opioids and simple analgesics has prevailed. Conversely, a different study has shown that from the immediate postoperative period (IPO) to the fourth postoperative day, there have been 344 analgesic prescriptions, being 127 (36.9%) simple analgesics, 120 (34.9%) opioids and 97 (28.2%) NSAIDS. It is worth stressing that most drugs (52.65) were under the "medical criteria" schedule[8].

In analyzing POP in patients submitted to elective craniotomy, investigators have found that, although moderate pain was present throughout the study, there has been little use of opioids. This fact may be related to the fear that opioids may impair neurological evaluation. It was also indentified that most medical charts had no records on pain intensity by the multidisciplinary team, thus confirming our findings. When pain was recorded, in most cases this was done by physicians and in few patients by the nursing team[9].

It is known that in clinical practice opioids and NSAIDS are broadly used to treat and relieve POP, however their analgesic efficacy varies according to potency, duration of their effect and possibility of inducing undesirable effects which limit their continuity.

Investigators assure that more effective analgesic techniques (for example, regional analgesia) may be useful not only to favor superior analgesia, but also to improve conventional results, especially in high risk patients or those submitted to high risk surgical procedures. In addition, they state that additional studies on predictors of POP and persistent POP, on the efficacy of specific multimodal analgesic regimens and the progress of new promising techniques may lead to substantial gains in the treatment of acute postoperative pain and to the potential of decreasing the development of persistent pain[10].

There are many methods and pharmacological therapies to control pain of patients submitted to surgical procedures. It is up to physicians to recognize the complexity of the surgery, the history and individuality of patients to administer the optimal pharmacological therapy.

With regard to the content of pain records in this study (intensity, location and analgesia), findings are in line with a recent research which has evaluated pain and analgesia records in medical charts of patients admitted to a reference hospital to treat human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS). Here, medical charts have shown relevant pain characteristics, especially about pain presence, location, duration and intensity for most patients[4].

A different study has analyzed nursing records about pain and analgesia in patients admitted to an oncologic hospital and have found different results from our study with regard to the presence of records in medical charts. In that study, most charts had records about presence or absence of pain in the last 24h. But with regard to pain characteristics, there has been consonance with our results, stating that records about pain characteristics were restricted to the description of site and intensity[11].

However, authors emphasize that professionals have to be attentive to the recording of detailed pain complaints, with de adoption of adequate tools to evaluate and record information, to improve pain assistance and control[4]. Such data should involve different variables, such as improving and worsening factors, pain-related losses, thorough description of pain by patients and satisfaction with analgesia, among other already described factors.

Our results show that, although trained to evaluate pain and its multidimensions, to use the validated unidimensional scale (VAS) and to record such evaluation considering described features, nurses whose records were analyzed in this study have not done it, or if such evaluation was carried out, it was not recorded, which may generate poor efficacy of implemented analgesia and patients' dissatisfaction.

Table 2 shows that VAS scores have shown statistically significant relation between pain intensity and postoperative time, that is, subsequent hours to the first evaluation in the PACU, which was proven by Chi-square test for linear trend ($p<0.001$).

A similar study has found different results. Evaluating POP intensity in 1, 6 and 24 hours and relating it to analgesics prescribed by the surgical team and to the anesthetic technique used, there has been no statistically significant difference among evaluated moments ($p=0.38$) although mean pain intensity was higher at the sixth hour. That study has also shown that most patients (36) have received NSAIDS associated to dipirone, 24 received dipirone alone, 12 received opioid and dipirone and 4 received opioid associated to NSAID[12]. It is worth stressing that it is also important to evaluate patients' satisfaction with analgesia, but this study has not found records about this. However, authors have found that, after implementing the concept of pain as the 5th vital sign, most patients (54%) have scored pain control as optimal[13].

A study has evaluated POP control quality in a teaching hospital, from the perspective of patients, nurses and medical charts audits, and has found that patients with more pain than expected were less satisfied with the quality of their assistance and had higher levels of pain intensity. For 25 (41.0%) patients in general surgery and four (6.7%) in chest surgery, pain intensity was recorded according to hospital's quality objectives. The study has shown the need to discuss information to be given to patients and also how and when it should be given. In addition, taking into consideration previous pain experience and pain relief goal for the individual patient may help adequate pain evaluation[14].

A different study has evaluated the consistency between patients' assistance and what was documented, describing notified and omitted interventions. Authors have found that only 40% of observed nursing activities were included in medical charts (37% of evaluations and 45% of interventions), indicating that nurses performed more activities than those reported. The consistency between delivered and recorded assistance had significantly decreased in the days where more activities were performed. Consistency has been higher for evaluations of physical signs / symptoms and risk factors for complications as compared to the evaluation of basic needs and pain[15].

CONCLUSION

Results regarding underprescription of analgesics in the PO and its repercussions on lives of patients are alarming. Professionals

should be involved with POP management and recording, promoting better approaches and, as a consequence, higher patients' analgesic satisfaction.

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