



POSTOPERATIVE PAIN AT A UNIVERSITY HOSPITAL: PERSPECTIVES TOWARD HEALTH PROMOTION

Dor pós-operatória em hospital universitário: perspectivas para promoção de saúde

Dolor postoperatorio en hospital universitario: perspectivas para la promoción de la salud

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ABSTRACT

Objective: To evaluate the prevalence, influential factors and intensity of postoperative pain (POP) in patients attended to at a university hospital. **Methods:** A prospective, cross-sectional survey was carried out involving one hundred patients who underwent different types of surgical procedures in the period from March to May 2016, and were interviewed within the first 24 hours of the postoperative period, and evaluated with use of a visual numerical scale. **Results:** The most common types of surgery were: cesarean section, appendectomy, prostatectomy, total thyroidectomy and osteosynthesis; while the anesthetics were the spinal anesthesia and the balanced general anesthesia, with a lower prevalence of POP when spinal anesthesia was adopted. Of the patients, 43% (n = 43) reported POP, with a prevalence of 44% (n = 14) in the male sex and 43% (n = 29) in the female sex. Among these, 30% (n = 13) classified the POP as a strong-intensity pain, 53.5% (n = 23) classified it as moderate, and 14% (n = 6), as mild. There was higher prevalence of POP in the age ranges of 25-34 and 55-64 years, and significant causal association between the variables diagnosis, type of surgery, pain site and intensity. Moreover, the location of the POP was significantly related to the age range or type of surgery, and its intensity was related to the age range. **Conclusion:** The postoperative pain in the university hospital in question proved prevalent in patients of both sexes and was dependent on the age range, the heterogeneity of surgical procedures, and the anesthetic protocols, with the moderate-intensity pain as the most identified one.

Descriptors: Pain; General Surgery; Prevalence; Epidemiology.

RESUMO

Objetivo: Avaliar a prevalência, os fatores influentes e a magnitude da dor pós-operatória (DPO) em pacientes atendidos em um hospital universitário. **Métodos:** Realizou-se estudo prospectivo e transversal envolvendo 100 pacientes submetidos a diferentes procedimentos cirúrgicos, no período de março a maio de 2016, entrevistados nas primeiras 24 horas do pós-operatório e avaliados através de uma escala visual numérica (EVN). **Resultados:** As cirurgias mais comuns encontradas são: cesárea, apendicectomia, prostatectomia, tireoidectomia total e osteossíntese; e as anestésias: raquianestesia e geral balanceada, sendo a prevalência de DPO menor quando usada a raquianestesia. Dos pacientes, 43% (n = 43) declararam DPO, com prevalência de 44% (n = 14) para o sexo masculino e 43% (n = 29) para o feminino.



Entre esses, 30% (n = 13) classificaram a DPO como de intensidade forte, 53,5% (n = 23) classificaram como moderada, e 14% (n = 6), leve. Houve maior prevalência de DPO nas faixas etárias de 25-34 e 55-64 anos, e relações causais significativas entre o sexo do paciente e as variáveis diagnóstico, tipo de cirurgia, local ou intensidade da dor. Além disso, o local da DPO relacionou-se com a faixa etária ou tipo de cirurgia, e a intensidade se relacionou com a faixa etária. **Conclusão:** A dor pós-operatória no hospital universitário em questão se apresentou prevalente em pacientes de ambos os sexos e dependente da faixa etária, da heterogeneidade de procedimentos cirúrgicos e de protocolos anestésicos, sendo a de intensidade moderada a mais identificada.

Descritores: Dor; Cirurgia Geral; Prevalência; Epidemiologia.

RESUMEN

Objetivo: Evaluar la prevalencia, los factores que influyen y la magnitud del dolor postoperatorio (DP) de pacientes asistidos en un hospital universitario. **Métodos:** Se realizó un estudio prospectivo y transversal con 100 pacientes sometidos a distintos procedimientos quirúrgicos en el período entre marzo y mayo de 2016 los cuales fueron entrevistados en las primeras 24 horas del postoperatorio y evaluados con una escala visual numérica (EVN). **Resultados:** Las cirugías más comunes son: la cesarea, la apendicectomía, la prostatectomía, la tireoidectomía total y la osteosíntesis; y las anestésicas: la raquianestesia y anestesia general balanceada, con menos prevalencia de DP cuando se usa la raquianestesia. De entre los pacientes, el 43% (n = 43) declararon DP con prevalencia del 44% (n = 14) para el sexo masculino y del 43% (n = 29) para el femenino. Entre ellos el 30% (n = 13) han clasificado el DP de intensidad fuerte, el 53,5% (n = 23) de moderada y el 14% (n = 6) leve. Hubo mayor prevalencia de DP en las franjas de edad entre 25-34 y 55-64 años y relaciones causales significativas entre el sexo del paciente y las variables diagnóstico, tipo de cirugía, local o intensidad del dolor. Además de eso, el local del DP se relacionó con la franja de edad o el tipo de cirugía y la intensidad se ha relacionado con la franja de edad. **Conclusión:** El dolor postoperatorio en ese hospital universitario se más presentó en pacientes de ambos los sexos y dependiente de la franja de edad, de la heterogeneidad de los procedimientos quirúrgicos y de los protocolos anestésicos siendo el dolor de intensidad moderada el que ha sido más identificado.

Descritores: Dolor; Cirugía General; Prevalencia; Epidemiología.

INTRODUCTION

Pain is defined as a subjective, emotional and sensory experience, unpleasant and related to actual or potential damage to the organism⁽¹⁻³⁾. Postoperative pain (POP), which may be arise from the clinical condition that led to the surgery or a natural response to the procedure, is common and may occur as a form of alert⁽²⁾. Such condition is highlighted in the literature. Studies indicate that up to approximately 80% of the patients undergoing surgical intervention can experience POP^(2,4-9), but this prevalence may fall to about 7% in surgical centers that have strict protocols for pain control^(2,10). In Brazil, different studies address the theme^(2,3), but the majority of the consequences of this postoperative condition remain neglected.

Studies indicate that 78.2% of the episodes of POP occur within the first 24 hours (acute pain), with 27.1% categorized as intense and 58.3% considered moderate⁽¹¹⁾, and that these outcomes are more common after abdominal and cardiac surgical procedures, affecting approximately 40% of those who have been operated on⁽³⁾. POP not only causes unpleasant aspects and pathological repercussions (such as cardiovascular, neurological, respiratory complications and potential onset of a chronic pain from the acute POP), but also delays patient walking and discharge from hospital^(2,12-15).

Moreover, factors related to the individual needs of the patient in the pre- and postoperative period, as well as to the services provided by the multidisciplinary team, can influence the patient's full well-being and health promotion. The comprehensiveness of patient health care should be regarded as a complement to the services purely based on assisting/intervening, which are routinely adopted to control the POP^(2,3,6,10-12).

In this sense, the quality of life of the patients who undergo surgeries can be positively influenced, provided that the experiences and the point of view of the professionals, as well as the patients', be taken into consideration, aiming not only for the immediate relief of pain, but also the promotion of comfort and well-being⁽¹⁶⁻¹⁸⁾. Pain control can also be considered an indicator of the quality and effectiveness of health promotion⁽¹⁹⁾.

Based on the foregoing, this study aims to evaluate the prevalence, influencing factors and magnitude of the postoperative pain (POP) in patients attended to at a university hospital.

METHODS

The present observational and cross-sectional study was developed in the ward of a university hospital located in Alfenas, in the southern Minas Gerais state (MG), Brazil, in the period from March to May 2016. According to the availability of the surgical center, the sample population was composed of 100 patients submitted to surgical procedures, with selection conducted in a non-random manner⁽²⁰⁾.

The inclusion criteria considered for participation in the study were: patients over 18 years of age undergoing any type of surgery and able to answer the questions asked by the evaluator. The exclusion criterion adopted took into account any difficulty presented by the patient in understanding the pain evaluation method with use of the adopted visual numerical scale (VNS) (Figure 1) and/or in responding to the questionnaire. Thus, all patients eligible to participate in the study, according to the aforementioned criteria and period, were included when meeting the conditions for an adequate sample^(20,21).

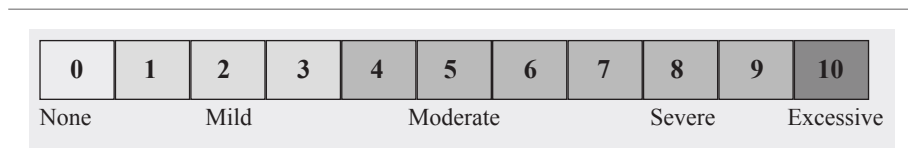


Figure 1 - Visual numerical scale (VNS) used for assessment of pain intensity - Alfenas, Minas Gerais, Brazil, 2016.

Caption: Number 0 represents no pain and, gradually, the increase in pain intensity is represented by the numerical increase in the scale (values 1-3: mild pain, 4-6: moderate pain, and 7-10: severe pain).

The patients interviewed and evaluated for postoperative analgesia responded to an individual, semi-structured questionnaire (prepared by the researchers) and based on variables of interest, as reported in the literature^(2,11,12,22,23). It was applied in a reserved place, by a single researcher and aloud, aiming to avoid misinterpretations. The data collected referred to the diagnosis/type of surgery, the anesthesia used, the patient's condition and satisfaction in the postoperative period, the measurement of the POP (VNS) and the quality of the service provided.

In the analysis of the data, the prevalence of patients with POP was estimated and the potential complications and difficulties during the surgery, the health conditions and the evaluation of users' satisfaction were analyzed. In order to verify the independence/dependence between the variables, Fisher's exact test was adopted at the 5% level of significance ($\alpha=0.05$), using the R software (R CORE TEAM, 2017). Pain intensity was classified as mild (1 to 3), moderate (4 to 6) or severe (7 to 10)⁽²²⁾.

This study followed the ethical standards stated in the Helsinki Declaration and its updates, being previously approved by the local ethics committee on research involving human beings (Approval No. 1,428,635). The protocol of the study involving humans protected those involved and the participations were voluntary and after having the purposes of the study explained to the volunteers and the Informed Consent Form (ICF) signed by them.

RESULTS

Of the 100 interviewees, 68% (n = 68) were female, with a mean age of 40 ± 17 years (37-43 years). In addition, 69% (n = 69) of the interviewees declared themselves as white; 18% (n = 18), pardos, and 13% (n = 13) as black.

The hospitalizations through the Unified Health System (*Sistema Único de Saúde - SUS*) accounted for 78% of the total (n = 78); while those covered by socialized health care were 19% (n = 19), and other types represented 3% (n = 3). Of the surgeries, 63% (n = 63) were elective, while 37% (n = 37) had urgency/emergency reasons.

Figure 2 shows the percentages and types of surgeries most practiced at the evaluated hospital.

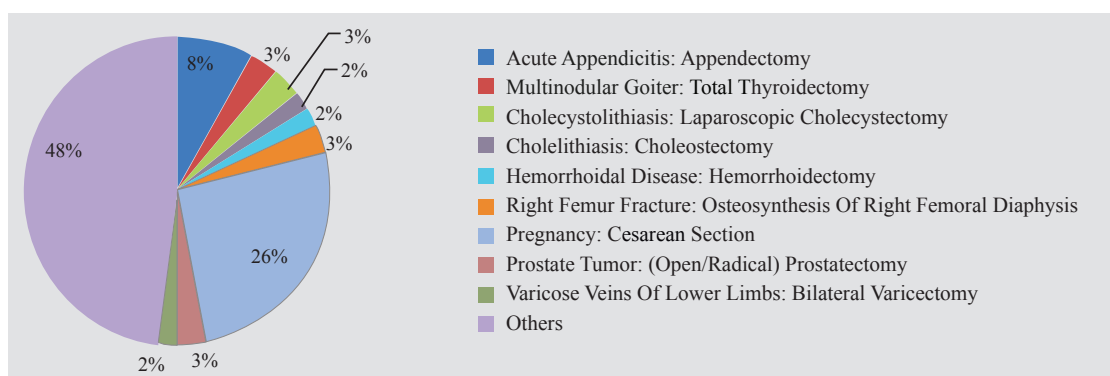


Figure 2 - Percentage of surgeries with their corresponding diagnoses (diagnosis/clinical condition: surgery) among patients attended to at a university hospital. Alfenas, Minas Gerais, Brazil, 2016.

Caption: *Others* (48%, n=48) represents a variety of surgical specialties (general, gynecological, proctological, vascular, mastological surgery, among others).

Table I presents the prevalence of POP in the above-mentioned surgeries and the POP intensity, in which one observes the lowest prevalence of POP when spinal anesthesia was used (39%, n = 24), compared to the balanced general anesthesia (60%, n = 15). With regard to complications, 5% (n = 5) of the patients underwent complications during surgery, as follows: hyperglycemia (n = 1), postanesthetic hypotension (n = 1), blood loss, uterine rupture after childbirth and unspecified bleeding (n = 3).

Table I - Stratification of postoperative pain among the interviewed patients attended to at a university hospital. Alfenas, Minas Gerais, Brazil, 2016.

Variables	Postoperative pain n(%)		
	Yes	No	Total
Sex			
Male	14 (44%)	18 (56%)	32 (100%)
Female	29 (43%)	39 (57%)	68 (100%)
Total	43* (43%)	57 (57%)	100 (100%)
Ethnicity			
White	26 (39%)	40 (61%)	66 (100%)
Pardo	8 (44%)	10 (56%)	18 (100%)
Black	6 (46%)	7 (54%)	13 (100%)
Did not inform	3 (100%)	0 (0%)	3 (100%)
Total	43 (43%)	57 (57%)	100 (100%)
Age range			
19-24	9 (39%)	14 (61%)	23 (100%)
25-34	15 (63%)	9 (37%)	24 (100%)
35-44	4 (25%)	12 (75%)	16 (100%)
45-54	3 (19%)	13 (81%)	16 (100%)
55-64	6 (67%)	3 (33%)	9 (100%)
65 or more	6 (50%)	6 (50%)	12 (100%)
Total	43 (43%)	57 (57%)	100 (100%)
Type of surgery			
Cesarean section	13 (50%)	13 (50%)	26 (100%)
Appendectomy	1(12,5%)	7 87,5%)	8 (100%)
Total thyroidectomy	1 (33%)	2 (67%)	3 (100%)
Type of anesthesia			
Spinal anesthesia	24 (39%)	37 (61%)	61 (100%)
Balanced general	15 (60%)	10 (40%)	25 (100%)
Regional nerve block	0 (0%)	2 (100%)	2 (100%)
Local	0 (0%)	2 (100%)	2 (100%)

With regard to the data on the anesthetic protocol in the 100 surgeries performed, 52% (n = 52) of the interviewees underwent a preanesthesia assessment (PAA) and, among these, 73% (n = 38) were provided with information about potential complications and 96% (n = 50) reported that the anesthesia performed corresponded to that proposed in the PAA. Spinal anesthesia accounted for 61% (n = 61) of the anesthetic procedures; the balanced general, to 25% (n = 25); regional nerve block, to 2% (n = 2); local anesthesia, to 2% (n = 2); and others, to 10% (n = 10).

As to the patients' level of satisfaction, 90% (n = 90) of the interviewees regarded the medical service as optimal and 10% (n = 10) considered it good. Furthermore, 84% (n = 84) regarded the medical staff as considerate and polite; 82% (n = 80) of the interviewees rated the anesthesiology department a 10; and 87% (n = 87) of the respondents rated the operation and infrastructure conditions of the surgical center a 10.

Table II presents the statistical analyses regarding the associations between the studied variables.

Table II - Statistical analyses of the variables of interest of the interviewed patients attended to at a university hospital. Alfenas, Minas Gerais, Brazil, 2016.

Analyzed variables versus Sex	p-value
Type of hospitalization	0.4866
Reason for surgery	0.2457
Diagnosis	<0.01**
Type of surgery	<0.01**
Complication during surgery ^I	0.3321
Type of complication ^{II}	1.0000
Information on anesthesia and potential complications	0.1785
Type of anesthesia	0.1387
Anesthesia proposed in PAA	1.0000
Anesthesia performed by the resident physician	0.2705
Post-operative pain	1.0000
Location of pain ^{III}	<0.01**
Intensity of pain	0.0053**
Current status (drowsy, dry mouth, anxious, doped)	0.2362
Other variables versus location/presence/intensity of pain	p-value
Ethnicity vs. location of pain	0.1820
Ethnicity vs pain intensity	0.3448
Age range vs location of pain	<0.001**
Age range vs pain intensity	0.0373*
Type of surgery vs location of pain	0.0192*
Type of surgery vs pain intensity	0.1658
Type of anesthesia vs location of pain	0.0825
Type of anesthesia vs pain intensity	0.5060

Caption: Significant at the 5% level of significance ($p < 0.05$); **Significant at the 1% level of significance ($p < 0.01$); ^In = 5.5%; ^{II}Most frequent types of complications: Bleeding (60%), Hyperglycemia (20%) and Post-anesthesia hypotension (20%); ^{III}Most common locations: Lower abdomen/abdominal region (n=23.53%) and Upper/lower limbs/column (n=14.33%). PAA: Preanesthesia assesment.

DISCUSSION

In the present study, 100 (n = 100) patients attended to at a university hospital in the south of Minas Gerais state, Brazil, submitted to different surgical procedures, were evaluated. In regard to the demographic data, as in a recent survey⁽²⁾, there was a higher frequency of female patients (68% versus 66.8%⁽²⁾) undergoing surgical intervention. The mean age was also similar (40 years versus 46⁽²⁾). Data from the current study indicate that the search for health services and greater health care occur more frequently in female patients, a fact also reported in the literature⁽²⁴⁾.

There was a significant relationship between sex and the diagnosis/type of surgery ($p < 0.01$) in the present study. The highest number of elective surgeries reported, compared to urgency/emergency surgeries is due to the high number of cesarean sections performed at the university hospital.

Taking into account the characteristics of the university hospital evaluated in the current research, with a general character and consequent provision of a variety of medical specialties, there was great heterogeneity regarding the types of surgeries performed, which led to the adoption of different anesthesia protocols. This factor may have a significant influence on the POP intensity^(2,24,25). In generalist hospitals, general surgery is the most common among the surgical specialties performed, followed by gynecological, proctological, vascular and mastological surgeries⁽²⁾.

Preanesthesia assessment (PAA) is essential for the patients' awareness of the anesthetic procedure and the recognition of potential adversities by the doctor. Of the 52 patients who underwent the PAA in the present study, 96% reported that the anesthesia performed corresponded to the proposal. Among the 37 interviewees who were submitted to urgency/emergency surgeries, 19% underwent PAA. Of the 63 patients submitted to elective surgical procedures, 71% underwent PAA. The highest

percentage of PAA carried out in elective surgical procedures is due to the greater availability of time for patient evaluation. As the anesthetic procedure, spinal anesthesia was most frequently used, present in 61% of cases, followed by balanced general anesthesia (25%). The large number of patients undergoing spinal anesthesia is partly due to the number of cesarean sections performed, since this anesthesia is recommended for this surgical procedure⁽²⁶⁾. Less frequently, regional nerve block and local anesthesia (2% each) were used.

Regarding the POP, among the 100 interviewees of the study in question, 43% reported POP. Such value is close to (41%⁽⁷⁾ and 46%⁽²⁾), below (58%⁽⁶⁾ and 70%⁽⁸⁾), or higher (2.2%⁽¹⁰⁾) than those found in the literature. However, the multimodal approach to pain prevention used in patients⁽¹⁰⁾ brings as consequence the lower prevalence of POP. The type of surgical procedure, the patient's conditions, the susceptibility threshold, and the anesthesia used influence the acute POP, which explains the differences in prevalence.

As more specifically stated in the present survey, the prevalence of POP among males is 44%, slightly higher than the 43% among females; in the literature, there is evidence that females have lower pain thresholds and, as also stated in a previous study⁽²⁾, a higher prevalence is reported among men. The influence of the patient's sex on the POP is also highlighted in other studies^(12,16,23,24), where a higher prevalence is usually found among females, but under a single type of surgery and taking into account the possibility of women to verbalize pain more easily and to more easily claim severe pain^(2,16,24). In the present study, there were significant associations between sex and location or intensity of pain, but not between sex and prevalence.

As to the age range, a higher frequency of pain in young and male patients is reported in the literature⁽²⁷⁾, in opposition to other findings⁽²⁾, which show a higher prevalence in elderly individuals over 60 years. In the current study, the age range was related to the location or intensity of pain, with the lower abdomen as the most common pain site. Regarding the intensity of pain, 5-point intensity was observed as the most prevalent in the age range of 19 to 24 years. For the other age ranges, the frequencies of pain intensity were not expressive. A higher prevalence of POP was found in the age ranges of 25-34 and 55-64 years.

On the types of surgery, the literature shows that patients submitted to general surgery (inguinal and umbilical herniorrhaphy, conventional and laparoscopic cholecystectomy, and exploratory laparotomies) presented more POP⁽²⁾. In the present study, 82% of the patients submitted to cesarean section had pain in the lower belly (comparing type of surgery vs pain site), while those submitted to cholecystectomy reported pain in the right hypochondrium, with a significant relationship between these variables. A higher prevalence of POP in patients submitted to orthopedic surgical procedures has been reported, so that repercussions should be considered more deeply, aiming for full health promotion⁽²⁸⁾.

Among the interviewees of the current research, the pain intensity was found as: 13% for severe pain (when 3% reported the most severe pain, represented by number 10 on the VNS), 23% moderate and 6% mild. There was a significant relationship between pain intensity and gender or age range. Such findings are in agreement with another study, which showed a prevalence of approximately 27.1% for severe pain and 58.3% for moderate pain⁽¹¹⁾, which is slightly different from that observed in other studies, which reported a prevalence of 27.1% for severe pain, 29.4% for moderate⁽²⁾ and 67% for severe pain⁽¹²⁾.

With regard to the quality of the postoperative care provided in the present research, which directly influences the health promotion, there was a marked satisfaction among the users interviewed with the services provided by the medical and anesthesiology staff and the surgical center facilities. Such observation is fundamental for the effectiveness of hospital policies aimed at eradicating/reducing the pain experienced by patients at all levels, which can be achieved by providing a quality service in all stages of patient care, mainly with the possibility of a remarkable influence on the postoperative care.

In this sense, the implementation, monitoring and evaluation of educational programs can improve the practice in health care, facilitating the health professional-patient communication and resulting in quality of care, pain relief, promotion of well-being and improvement of the quality of life of the patient undergoing surgery^(22,29,30).

The postoperative condition is a reality that must be properly diagnosed and managed, avoiding injuries, which results in benefits to the patient's quality of life, especially in the recovery period. In total, the interviewees of the present study submitted to elective surgeries were provided with clarifications in the PAA and evaluated the service and infrastructure conditions of the surgical center as excellent.

CONCLUSION

The postoperative pain at the university hospital in question proved prevalent in patients of both sexes and dependent on the age range, the heterogeneity of surgical procedures, and the anesthetic protocols, with the moderate-intensity pain as the most identified one.

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