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ORIGINAL ARTICLE

Profile and management of patients with low back pain complaints in a Brazilian Emergency Department: a cross-sectional retrospective study

Perfil e manejo de pacientes com sintoma de dor lombar em um Pronto-Socorro Brasileiro: um estudo observacional retrospectivo

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GENERAL INFORMATION

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ABSTRACT

Objective: To describe the demographic profile and the management of patients with low back pain (LBP) complaints presenting to the Emergency Department (ED) of a Brazilian public hospital. **Methods:** Retrospective, cross-sectional study using a convenience sample of patients with LBP triaged at the studied ED through the Manchester Triage System along a year. Data were extracted from electronic medical records. LBP presentations were classified as non-traumatic, traumatic, and non-spinal related pain according to the signs and symptoms reported. Data included patients' demographic profile, pain severity and management (imaging exams, medication prescription and hospitalization). **Results:** Data from 2016 patients was analyzed. Most were middle-aged adults (mean age = 40.5years, SD 15.7), female (n = 1043, 51.7%) and presented moderate pain intensity (score range 4 to 7 on the Visual Analogue Scale, n=1,471; 74.1%). Non-traumatic pain (n = 1,016; 50.4%) was the main cause of care-seeking. A total of 36.9% (n = 743) underwent imaging exams and 42.2% (n = 850) received medication. Patients with non-spinal related pain were three times more likely to receive opioid medication (OR = 2.96; 95%CI 2.30 to 3.79). **Conclusion:** Non-traumatic LBP (no history of trauma or red flags) was the main cause of LBP care-seeking in a Brazilian ED. Most patients were treated conservatively and without hospitalization. Opioids prescription and imaging exams, although performed on a smaller scale, were still used for of the management of this type of LBP.

Palavras-Chave
Assistência centrada no paciente
Dor lombar
Serviços médicos de emergência

RESUMO

Objetivo: Descrever o perfil demográfico e manejo de pacientes com dor lombar (DL) apresentados no pronto-socorro (PS) de um hospital público brasileiro. **Métodos**: Estudo transversal retrospectivo, utilizando amostra de conveniência de pacientes com DL triados através do *Manchester Triage System* ao longo de um ano. Os dados foram extraídos dos prontuários eletrônicos. A DL foi classificada como dor não traumática, traumática e não-espinhal, de acordo com os sinais e sintomas relatados. Os dados incluíram o perfil demográfico, gravidade e controle da dor (exames de imagem, prescrição de medicamentos e hospitalização). **Resultados**: Foram analisados 2.016 pacientes. A maioria era de meia-idade (média de idade = 40,5 anos, DP 15,7), sexo feminino (n = 1043, 51,7%) e apresentava intensidade moderada de dor (escore de 4 a 7 na Escala Visual Analógica, n = 1.471; 74,1%). A dor não traumática (n = 1.016; 50,4%) foi a principal causa de procura. Um total de 36,9% (n = 743) foi submetido a exames de imagem e 42,2% (n = 850) receberam medicação. Pacientes com dor não-espinhal tiveram três vezes mais chances de receber medicação com opióides (OR = 2,96; IC 95% 2,30 a 3,79). **Conclusão**: A DL não traumática (sem histórico de trauma ou bandeiras vermelhas) foi a principal causa de procura de cuidados por lombalgia em um PS brasileiro. A maioria dos pacientes foi tratada de forma conservadora e sem hospitalização. A prescrição de opióides e exames imagem, embora em menor escala, ainda foi utilizada no manejo desse tipo de dor lombar.

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INTRODUCTION

Low back pain (LBP) is a ubiquitous symptom reported by people of all ages worldwide[1]. It is defined as the experience of pain between the lower rib margins and the buttock creases, which may be accompanied by neurological symptoms (e.g.,, pain irradiation to the lower limbs) or pathological conditions (e.g.,, fractures, infection and malignancy)[1,2]. LBP is the result of a wide range of physical, psychological and social dimensions impairing function and a specific cause for LBP is rarely found, with most of the cases being described as non-specific[1]. Therefore, it is associated with multiple and diverse risk factors such as obesity, smoking, sedentary lifestyles, previous history of back pain, psychosomatic factors, heavy workloads and others[3,4].

LBP has an enormous social and financial impact on individuals and society due to its increasing prevalence and disability rates[1,5]. Most adults present at least one episode of LBP at some point in their lives[6]. It is the leading cause of disability globally and has also been ranked as the number one cause of years lived with disability in Brazil by the Global Burden of Diseases 2015 estimates[7]. A systematic review of studies from seven countries from Latin America has shown a LBP prevalence of 10,5% between the Latin population[3].

Care-seeking due to LBP has increased substantially over the last 20 years[7,8]. Although it is recommended that first-line care of LBP should be done at the primary care level[9], there has been a sudden increase in the number of patients seeking care in emergency departments (ED)[10-12]. A recent systematic review of 21 studies has shown that up to 5% of presentations to ED are due to LBP complaints[12]. In countries such as the USA and Canada, LBP is among the top ten most common complaints in ED[13,14]. In Brazil, ED are commonly used as the entry point for healthcare by patients with LBP and this overuse is one of the biggest challenges on the management of LBP and its impact on the public healthcare system[15].

Little is known about those who seek care due to LBP in ED[10-12,16], particularly in developing countries such as Brazil[15]. Understanding the profile and management of patients with LBP presenting to EDs is critically important to determine which aspects of care need to be improved and ensure the delivery of qualified and safe healthcare. Therefore, this study aims to describe the demographic profile and the management of patients who sought care for LBP in a Brazilian Emergency Department.

METHODS

Study design and ethical approval

This is a retrospective, cross-sectional study based on Electronic Medical Records. Ethical approval was granted for this study from the Minas Gerais Federal University Research Ethics Committee (CAAE 30317014.6.0000.5149) under decision number 666,546.

Settings, sample and eligibility criteria

Data for this study were collected from electronic medical records of patients with symptoms on the lumbar spine presenting to a public teaching hospital (Risoleta Tolentino Neves Hospital) in Belo Horizonte, State of Minas Gerais, Brazil, from January to December 2013.

This study was conducted using a convenient sample of patients with low back pain symptoms triaged in the emergency room through the Manchester Triage System (MTS) along a year. The patients were identified for this research by a systematized search performed on the hospital database.

The MTS is a triage protocol used upon the arrival of the patient at the ED in which a trained health practitioner screens and categorizes patients' signs and symptoms in terms of severity before their medical assistance[17,18]. It has a list of 52 pre-defined conditions or health impairments flow-charts (e.g., low back pain, allergy and history of asthma) with specific key discriminators that guide the health practitioner towards the screening of patients signs and symptoms, in order to determine the severity of their condition, establish clinical priorities and streamline care for urgent patients[18]. As a result of the triage, patients are classified according to the urgency of their condition, that is, how long they can wait to receive medical assistance. The groups are divided and named by colors: red (emergency condition) - immediate care; orange (very urgent conditions) – waiting time ≤ 10 minutes; yellow (urgent conditions) – waiting time ≤ 60 minutes; green (standard conditions) – waiting time ≤ 120 minutes; blue (non-urgent conditions) – waiting time ≤ 240 minutes[19].

The studied hospital is a reference on urgent care and has its services focused on high complexity since an agreement was made in 2010 with the Municipal Secretary of Health of Belo Horizonte[20]. The agreement aims to optimize care for patients with severe conditions and states that patients classified by the MTS as emergent, very urgent or urgent are triaged into the hospital and receive care on its facilities, while patients classified as standard (green) or non-urgent (blue) are referred to less complex services, such as primary care centers[20]. In the year of reference, the agreement had already been consolidated. Therefore, this study sample consists of all patients triaged into the hospital through the LBP flow chart of the MTS and classified as emergent, very urgent or urgent (red, orange and yellow classification, respectively).

Sample stratification

The sample was stratified into three groups (Figure 1) for statistical and data analysis purposes according to the reported LBP's mechanism of pain and to the main signs and symptoms screened during the MTS triage. The groups were defined as follows:

1. *Non-traumatic pain:* LBP symptoms not associated with any history of mechanical trauma (e.g., car accident, fall, heavy weightlifting) or red flags (e.g., vomit, fever).

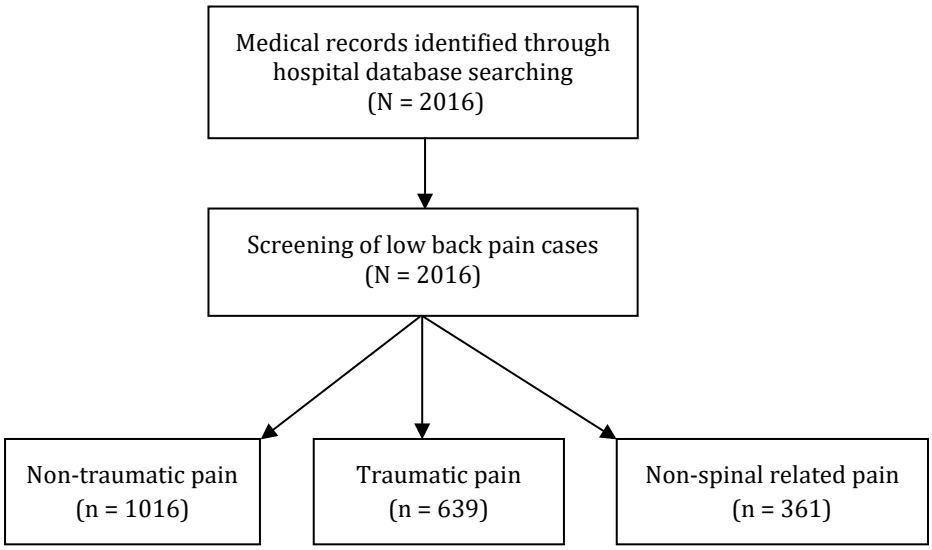

Figure 1 – Flowchart of sample stratification based on low back pain signs and symptoms.

2. *Traumatic pain:* LBP symptoms associated with any recent mechanical trauma (e.g., car accident, fall, heavy weightlifting).
3. *Non-spinal related pain:* LBP associated with signs and symptoms of a severe or visceral disease (e.g., fever, abdominal pain, dysuria, vomit).

Variables of Interest

1. *Demographic profile:* included patients' age and sex. Age was presented in four subgroups: children (0-14 years), youth (15-24 years), adults (25-64 years), and seniors (≥ 65 years).
2. *Pain severity:* patient's pain was rated using the Visual Analogue Scale (VAS), a numerical scale that ranges from 0 to 10 in which the patient was asked to pick a number to represent the severity of his current pain (0 represents no pain, 1 to 3 mild pain, 4 to 7 moderate pain, and 8 to 10 severe pain)[21].
3. *Imaging exams:* included radiography (X-ray), ultrasonography (US), and computed tomography (CT). Patients were counted for each imaging type they were referred to. When more than one type of imaging was prescribed for the same patient (e.g., X-ray and US), all of them were counted. However, repetitions of the same imaging type for the same individual were coded as a single imaging referral. Magnetic Resonance Imaging (MRI) was not available at the studied hospital.
4. *Medication*: medication prescribed was classified into three drug categories: non-opiate, opiate, and combined (non-opiate plus opiate) when both drugs were prescribed. Non-opiate drugs encompass paracetamol (acetaminophen), dipyrone and other non-steroidal anti-inflammatory drugs (e.g., aspirin). Opiates are commonly used to treat intense pain, which does not respond to non-opiates alone, and includes drugs such as codeine and morphine[22]. Opiates are often combined with non-opiate drugs to allow the usage of lower opiate doses[22].
5. *Hospitalization:* hospitalization consists of more than one-day length of hospital stay. When hospitalisation was considered necessary, patients would be treated by orthopedics or by another medical department, with conservative or surgical approaches. Data for hospital evasion was also recorded, which describes hospitalized patients but left the hospital inappropriately before being discharged.

Statistical Analysis

Descriptive analyses were performed on demographic profiles, clinical features and management of the total sample, and subgroups of patients (e.g., traumatic pain, non-traumatic pain or non-spinal related pain). To describe the characteristics of the LBP groups, we defined the reference group (e.g., traumatic pain) and the comparison group, as the combination of the two other groups (e.g., non-traumatic pain and non-spinal related pain). We used logistic regression to estimate the odds of being in the reference group compared to the other two groups. Age and sex were considered plausible confounders and were forced in all multivariate logistic regression models. We set $p < 0.05$ as our level of significance for the estimates of association in the models and presented estimates as odds ratio (OR) and 95% confidence intervals (CI). OR represents the odds of being in one group (e.g., non-spinal related pain) compared to all other groups pooled as a reference (e.g., traumatic spinal related pain and non-traumatic spinal related pain). Data analyses were performed using STATA statistical software (version 14.0).

RESULTS

Demographic profile

Overall, 2,016 patients were included in this study. The mean age of participants was 40.5 years [Standard deviation (SD): 15.7] and approximately half (n = 1,043; 51.7%) of the sample was female (Table 1). Adults (25-64 years) accounted for most of the cases (n=1,546; 76.7%) of those who sought care at the emergency of the studied hospital, while children (0-14 years) were the least frequently attended patients (n = 31; 1.5%). The prevalence of non-traumatic (n = 549; 54%), and non-spinal related pain (n = 217; 60.1%) was higher in females, while the prevalence of traumatic pain was higher in males (n = 362; 56.6%).

Type of pain

Non-traumatic pain (n = 1,016; 50.4%) was the main cause of care-seeking at the ED, followed by traumatic pain (n = 639; 31.7%), and non-spinal related pain (n = 361; 17.9%) (Table 2). Traumatic pain was the most common reason for care-seeking among children (OR 2.33; 95%CI 1.15 to 4.75) and non-traumatic pain the most common reason among adults (OR 1.27; 95%CI 1.03 to 1.56) (Table 3). Senior females (≥ 65 years) sough care more often due to traumatic pain (OR 1.71; 95%CI 1.12 to 2.61) compared to non-traumatic and non-spinal related pain.

Pain severity

Data on pain severity (VAS) was available for 1,985 patients (Table 2). Most of the patients presented with a moderate level of pain (n = 1,471; 74.1%), with a mean pain score of 4.6 (SD 1.5). The highest pain scores were related to non-spinal related LBP complaints (mean 5.3; SD 1.5).

Imaging exams

Most patients (n = 1,273; 61.3%) were not referred to imaging during their visit to the ED (Table 2). When an imaging exam was requested, X-ray was the most common type (n = 588; 29.2%), followed by US (n = 198; 9.8%), and CT scans (n = 87; 4.3%).

Table 2 **–**Clinical features of the total sample and type of pain subgroups.

Variables	All (N = 2016)		Traumatic pain (n = 639)		Non-traumatic pain (n = 1016)		Non-spinal related pain (n = 361)	
	n	$\overline{x}$ (SD) or %	n	$\overline{x}$ (SD) or %	n	$\overline{x}$ (SD) or %	n	$\overline{x}$ (SD) or %
Pain severity (0-10)	1985	4.6 (1.5)	628	4.5 (1.4)	1008	4.5 (1.6)	349	5.3 (1.5)
Mild pain (0-3)	433	21.8	132	21.0	260	25.8	41	11.7
Moderate pain (4-7)	1471	74.1	479	76.3	704	70.1	288	81.7
Severe pain (8-10)	81	4.1	17	2.7	41	4.1	23	6.6
Imaging exams (*)								
None	1273	63.1	286	44.8	752	74.0	235	65.1
X-ray	588	29.2	344	53.8	177	17.4	67	18.6
Ultrasonography	198	9.8	24	3.8	96	9.5	78	21.6
CT	87	4.3	44	6.9	28	2.8	15	4.2
Medication								
None	1166	57.8	391	61.2	636	62.4	139	38.8
Non-opiate only	429	21.3	111	17.4	177	17.4	141	39.4
Opiate only	10	0.5	7	1.1	2	0.2	1	0.3
Non-opiate + Opiate	411	20.4	130	20.3	201	20.0	80	21.5
Hospitalization								
No	1876	93	603	94.3	960	94.5	313	86.7
Yes, orthopedics	38	1.9	29	4.5	6	0.6	3	0.8
Yes, not orthopedics	93	4.6	1	0.2	47	4.6	45	12.5
Spinal surgery	1	0.1	1	0.2	0	0	0	0
Surgery in another body site	4	0.2	4	0.6	0	0	0	0
Hospital evasion	4	0.2	1	0.2	3	0.3	0	0

*Patients could have received more than one type of imaging exam. $\overline{x}$ = Mean; SD = standard deviation; CT = computed tomography.

Table 3 – The odds of seeking care in the emergency department due to LBP according to age group.

Age ranges	Traumatic pain OR (95% CI)	Non-traumatic pain OR (95% CI)	Non-spinal related pain OR (95% CI)
Children (0 to 14 years)			
All	**2.33 (1.15 to 4.75)**	**0.34 (0.15 to 0.75)**	1.36 (0.58 to 3.18)
Male	**3.09 (1.03 to 9.29)**	**0.18 (0.04 to 0.79)**	1.61 (0.44 to 5.84)
Female	1.96 (0.74 to 5.20)	0.48 (0.18 to 1.32)	1.18 (0.38 to 3.66)
Youth (15 to 24 years)			
All	1.10 (0.84 to 1.45)	0.83 (0.64 to 1.07)	1.17 (0.85 to 1.62)
Male	1.43 (0.98 to 2.07)	0.73 (0.50 to 1.07)	0.93 (0.55 to 1.59)
Female	0.84 (0.56 to 1.27)	0.92 (0.65 to 1.31)	1.35 (0.90 to 2.02)
Adults (25 to 64 years)			
All	**0.79 (0.63 to 0.98)**	**1.27 (1.03 to 1.56)**	0.95 (0.73 to 1.25)
Male	**0.72 (0.52 to 0.98)**	1.24 (0.90 to 1.69)	1.25 (0.79 to 1.98)
Female	0.79 (0.58 to 1.08)	**1.33 (1.01 to 1.76)**	0.86 (0.61 to 1.20)
Seniors (65 years and over)			
All	1.26 (0.90 to 1.76)	0.93 (0.67 to 1.28)	0.79 (0.50 to 1.24)
Male	0.93 (0.53 to 1.64)	1.46 (0.85 to 2.53)	0.43 (0.15 to 1.22)
Female	**1.71 (1.12 to 2.61)**	0.69 (0.46 to 1.03)	0.88 (0.53 to 1.47)

OR = odds ratio; CI = Confidence interval; Numbers in **bold** represent statistically significant results ($p \leq 0.05$).

Table 4 – The odds of receiving imaging, medication or being hospitalized in the emergency department according to LBP subgroups.

Variables	Traumatic pain OR (95% CI)	Non-traumatic pain OR (95% CI)	Non-spinal related pain OR (95% CI)
Imaging exams			
None*	**0.32 (0.26 to 0.39)**	**2.67 (2.21 to 3.22)**	1.08 (0.85 to 1.37)
X-ray*	**5.54 (4.48 to 6.84)**	**0.29 (0.24 to 0.36)**	**0.51 (0.38 to 0.68)**
US*	**0.26 (0.17 to 0.41)**	0.92 (0.68 to 1.23)	**3.64 (2.66 to 4.99)**
CT*	**2.26 (1.46 to 3.49)**	**0.44 (0.28 to 0.69)**	1.04 (0.59 to 1.84)
Medication			
None*	1.20 (0.99 to 1.45)	**1.49 (1.25 to 1.78)**	**0.39 (0.31 to 0.49)**
Non-opiates only*	**0.73 (0.57 to 0.93)**	**0.62 (0.50 to 0.77)**	**2.96 (2.30 to 3.79)**
Opiates only*	**4.86 (1.24 to 19.11)**	0.26 (0.05 to 1.22)	0.51 (0.06 to 4.06)
Non-opiates + Opiates*	0.99 (0.78 to 1.25)	0.94 (0.75 to 1.16)	1.14 (0.86 to 1.51)
Hospitalization			
None*	1.37 (0.92 to 2.04)	**1.64 (1.15 to 2.33)**	**0.35 (0.24 to 0.51)**
Yes, orthopaedics*	**7.11 (3.31 to 15.28)**	**0.17 (0.07 to 0.41)**	0.45 (0.14 to 1.50)
Yes, not orthopaedics*	**0.02 (0.01 to 0.16)**	0.98 (0.65 to 1.49)	**4.82 (3.14 to 7.39)**

*****Adjusted for age and gender. Numbers in **bold** represent statistically significant results ($p \leq 0.05$).
OR = odds ratio; CI = Confidence interval; US = Ultrasonography; CT = Computed tomography.

Patients with traumatic pain presented with higher odds of being referred to X-ray (OR 5.54; 95%CI 4.48 to 6.84) or CT scans (OR 2.26; 95%CI 1.46 to 3.49) when compared to the other subgroups (Table 4). Besides, patients classified as non-spinal related pain were three times more likely (OR 3.64; 95%CI 2.66 to 4.99) to be referred to US imaging while patients with non-traumatic pain were almost three times less likely to be referred to imaging examination (OR 2.67; 95% 2.21 to 3.22).

Medication

Most patients did not receive medication prescription during their presentation to the ED (n =

1,166; 57.8%) (Table 2). Medication prescription was higher for the non-spinal related pain group (n = 222; 61.2%). When medication was prescribed, the most common prescriptions included non-opiate medication alone (n = 429; 21.3%) or the combination of opiate and non-opiate m-edication (n = 411; 20.4%). The use of opiate medication alone was uncommon (n = 10; 0.5%).

Non-traumatic pain individuals were 50% less likely (OR 1.49; 95%CI 1.25 to 1.78) to receive a prescription of medication when compared to the other LBP groups (Table 4). Patients presenting with non-spinal related pain were almost three times more likely to take non-opiates only (2.96; CI 2.30 to 3.79), while patients with traumatic pain presented almost five times higher odds of taking opiates only (4.86; CI 1.24 to 19.11).

Hospitalization

The minority of the sample (n = 140; 7%) required hospitalization (Table 2). Patients with traumatic pain were seven times more likely to be hospitalized by the orthopedics department (OR 7.11; 95% CI 3.31 to 15.28) compared to non-traumatic and non-spinal related pain. Non-spinal related patients were almost five times more likely to be hospitalized by another medical specialization (OR 4.82; 95%CI 3.14 to 7.39) compared to the other type of LBP groups (Table 4).

Hospital evasions (n = 4; 0.2%) and surgeries (n = 5; 0.3%) were rare (Table 2). Of the 140 patients hospitalized, only one was submitted to spinal surgery and the other four underwent surgical procedures in another body site.

DISCUSSION

This retrospective cross-sectional study included data from 2,016 patients presenting with LBP to the ED of a public teaching hospital in Brazil to describe their demographic profile and the management employed. Most patients were middle-aged adults (25 to 64 years old) with moderate levels of pain. Approximately half of the sample was female. Non-traumatic LBP was the leading cause of seeking care and most of these patients did not receive medication or underwent an imaging exam. Patients were rarely hospitalized and spinal surgery was performed only once.

The patients' demographic profile is similar to other studies focused on LBP presentations to EDs. Nunn et al. have shown that most of the patients who presented to a Canadian ED with LBP were middle-aged adults (mean age 43 years vs. 40.5 our study) and 55% of the sample was female (compared to 51.7% in our study)[10]. Likewise, Waterman et al. have shown that LBP patients presenting to an ED in the USA had a mean age of 38.8 years and 48.5% of the sample was female[11]. The evidence from ours and other studies suggest that most people who seek care in emergency services are in the economically active age, which might be explained by the higher prevalence of LBP in this age range, given that the individuals are more exposed to risk factors such as increased workload and stress[4,23]. Besides, sex does not appear to be a factor influencing the incidence of LBP in EDs, once the rates of seeking care for males was similar to the rates for females in our study and previous ones performed in this setting[10,11,24].

In terms of pain severity reported throughout the VAS scale, most of our patients (78.5%) presented moderate levels of pain, which is comparable to the results found by Nunn et al. in another emergency service, in which 68,5% of the patients reported moderate levels of LBP by the time of their assessment[10]. The prevalence of moderate levels of LBP in EDs might suggest that patients who seek hospital care may be presenting an acute exacerbation of their symptoms[25]. However, it was not possible to determine whether part of our sample presented any LBP history before their presentation to the ED. Severe pain levels were mostly experienced by patients with non-spinal related pain, which was an expected result, once these patients presented with signs and symptoms that were more likely to be due to a visceral pain referring to the lower back.

The management of patients in our study was similar to the findings of previous studies in this field[10,26,27]. Overall, 38.7% of our sample underwent imaging exams, comparable to the results found in a Canadian study in which they were prescribed for one-third (30%) of patients presenting to an ED with LBP[10]. In another Canadian ED, Edwards et al. found that 27.3% of patients presenting with non-specific LBP received an X-ray[26], while we observed a 29.2% rate in our study. Similarly, Friedman et al. found that 30.5% of individuals with back-pain presentations in an ED of the USA received X-rays[27]. To avoid unnecessary healthcare expenses and patient harm, guidelines recommend imaging prescription only when severe conditions (e.g., radiculopathy) are suspected[28,29]. In our study, imaging exams were more likely to be prescribed to patients with traumatic or non-spinal related pain, for which the symptoms and mechanism of pain required a more detailed investigation. However, although performed on a smaller scale, imaging prescription was still observed in the non-traumatic pain group of this study, in which pain manifestations were compatible with the non-specific LBP clinic. As most of our sample for non-traumatic pain did not present characteristics that would justify imaging, our research might be a sign of imaging exam overuse. Further analysis and medical diagnose would be needed to determine which imaging exams were truly warranted.

Our results have shown that drugs were prescribed to 42.2% of our sample, which is similar to the rates of medication prescription in other studies of LBP in ED[10,27]. Patients with non-spinal related pain were more likely to have a medication prescribed, which may be justified by the higher complexity of this group, in which patients presented red flags and symptoms associated with visceral disease and often referred severe pain levels in the VAS. In the non-traumatic LBP group, 62% of the patients of the present study did not receive medication, which is under guideline's recommendations[30] and is desirable since these patients presented symptoms that were more likely to be associated with non-specific LBP diagnosis, for which medication is not recommended as first-line of care[31]. However, when a medication was

prescribed for this group, most patients received opioid instead of non-opioid medication, which is not according to the current recommendations on patients presenting to EDs with non-specific LBP, since opiates are not superior to non-opiate analgesics for this type of pain[30]. Opiates are associated with individual and community risks of misuse and abuse and should be prescribed only for cases of severe pain or pain refractory to non-opioid analgesics and non-pharmacological therapies indicated for non-specific LBP management[30]. Furthermore, LBP encompasses a multidisciplinary approach, and recent research has pointed out that current protocols recommend physiotherapy interventions, pain self-management education and appropriate referral of patients with LBP rather than drug prescription[28].

A recent study of Foster et al. has shown that there are still gaps between evidence and practice in the management of LBP[32]. For instance, although it is well known that the first line of treatment for LBP should be done at a primary care level, presentations to EDs or medical specialists are still very frequent[32] and this is a current public health challenge in Brazil[15]. Moreover, the overuse of imaging exams and medication for non-specific LBP management is still common in EDs, even though existing protocols discourage this practice due to its low efficacy and high costs[28]. Furthermore, despite the evidence on the benefits of adding non-pharmacological treatment to LBP management, such as exercises and advice concerning the continuity of physical and labor activities, this approach is still rarely used[32].

Overall, only 7% of our sample was hospitalized. Other studies in EDs also presented a low hospitalization rate[10,11]. Non-spinal related pain was the more often hospitalized group in this study. This fact may be justified by the higher complexity of pain manifestations in this group, which requires more medical screening and possibly more complex treatments, being reasonably associated with a higher hospitalization length. Traumatic pain was the only group in which surgery was performed during hospitalization and only one out of five surgeries was on the spine. These findings suggest that the studied hospital does not usually use surgery as a baseline treatment for LBP, which is under the current recommendations for LBP management[28]. Therefore, our findings suggest that patients were mostly hospitalized when severe conditions were suspected and treatment for LBP presentations was mainly conservative.

Strengths and weaknesses of the study

One of the main strengths of this study was the availability of comprehensive hospital administrative data. Therefore, we are presenting an accurate picture of patients' demographic and clinical profiles with LBP and how they were addressed at the ED. Moreover, this study was carried in a large public emergency service from a developing country and provides a full description of LBP's approaches, demographic and clinical data.

Our study presents, however, some limitations. Our sample stratification was made according to the main signs and symptoms and to the mechanism of pain screened through the MTS triage and not according to the current LBP classification, as most studies have done[1,10,24,32]. Thus, we strongly believe that this study's results could be used as a valuable source of information for health care improvements focused on providing high-value care for LBP.

The studied hospital prioritizes the attendance of high complexity patients and thus, as a hospital rule, patients classified during the MTS as standard (green) or non-urgent (blue) are referred to other services. Therefore, another limitation of this research is that standard and non-urgent presentations of LBP are likely to be compatible with our non-traumatic LBP group. However, those individuals could not be included in our study's sample due to a lack of data. Thus, the number of patients presenting to the ED with signs and symptoms compatible with the non-traumatic LBP group of this study was underestimated by this research.

CONCLUSION

Non-traumatic LBP (i.e., no history of trauma or red flags) was the leading cause of care-seeking for LBP in a Brazilian Emergency Department. Most patients were treated conservatively and without hospitalization. Opioids prescription and imaging exams, although performed on a smaller scale, were still used for the management of this type of LBP. More studies addressing the burden of LBP in Brazilian Emergency Departments are needed to increase awareness regarding this topic and outline potential solutions to improve health care and outcomes in this field.

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