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Prevalence and Therapeutic Approach of Acute Pain in Emergency Provided by Triage Nursing

Theme: Evidence-based practice.

Contribution to the discipline: This study has an approach aimed at solving problems arising from the clinical practice in which decision making is based on the best evidence existing. It permits greater control of the state of health of patients who attend the emergency service with pain, treating the problem effectively due to a pain assessment protocol, with various therapeutic possibilities and of nursing responsibility with quite good results.

ABSTRACT

Objective: This work sought to assess the effectiveness of the treatment applied in patients with acute pain in the emergency service by triage nursing. **Materials and Methods:** Cross-sectional, observational descriptive study of quantitative approach, with measures of central tendency in 348 patients, conducted in 2016. An *ad hoc* questionnaire was used, elaborated by the emergency service, which assesses the intensity of pain through a numerical scale and a pain intervention protocol that includes physical and pharmacological measures. **Results:** After applying the first treatment, 80.17 % of the patients experienced improvement; 7.18 % required a second treatment and, of these, 87.5 % improved and 12.5 % suffered no modifications. The nursing staff treated the patients according to the protocol, with AINES and Metamizole, primarily. The rest were remitted to medical evaluation and another 40 patients rejected treatment. **Conclusions:** A high percentage of patients exist who improve their perception of pain after the first treatment administered by the triage nursing personnel. The results suggest revising and updating the protocol in the first treatment.

KEYWORDS (Source: DeCS)

Triage; protocols; nursing; emergencies; medical emergencies; acute pain.

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Prevalencia y enfoque terapéutico del dolor agudo en Urgencias brindado por la enfermería de triaje

RESUMEN

Objetivo: valorar la efectividad del tratamiento aplicado en pacientes con dolor agudo en el servicio de urgencias por la enfermería de triaje. **Materiales y métodos:** estudio descriptivo observacional, de corte transversal y de abordaje cuantitativo, con medidas de tendencia central en 348 pacientes, realizado en 2016. Se utilizó un cuestionario *ad hoc*, elaborado por el servicio de urgencias, que valora la intensidad del dolor mediante escala numérica y un protocolo de intervención ante el dolor que incluye medidas físicas y farmacológicas. **Resultados:** tras la aplicación del primer tratamiento, el 80,17 % de los pacientes experimentó mejoría; el 7,18 % requirió un segundo tratamiento y, de este, el 87,5 % mejoró y el 12,5 % no sufrió modificaciones. El personal de enfermería trató a los pacientes según el protocolo, con AINES y Metamizol, mayoritariamente. El resto fue dirigido a valoración médica y otros 40 pacientes rechazaron el tratamiento. **Conclusiones:** existe un alto porcentaje de pacientes que mejoran su percepción de dolor tras el primer tratamiento administrado por el personal de enfermería de triaje. Los resultados sugieren revisar y actualizar el protocolo en el primer tratamiento.

PALABRAS CLAVE (Fuente: DeCS)

Triaje; protocolos; enfermería; emergencias; urgencias médicas; dolor agudo.

Prevalência e abordagem terapêutica da dor aguda em pronto-socorro oferecidas pela enfermagem de triagem

RESUMO

Objetivo: avaliar a efetividade do tratamento aplicado em pacientes com dor aguda no serviço de pronto-socorro pela enfermagem de triagem. **Materiais e métodos:** estudo descritivo observacional, de corte transversal e de abordagem quantitativa, com medidas de tendência central em 348 pacientes, realizado em 2016. Foi utilizado um questionário *ad hoc*, elaborado pelo serviço de pronto-socorro, que avalia a intensidade da dor mediante escala numérica, e um protocolo de intervenção ante a dor que incluiu medidas físicas e farmacológicas. **Resultados:** após a aplicação do primeiro tratamento, 80,17 % dos pacientes experimentaram melhora; 7,18 % necessitaram segundo tratamento e, destes, 87,5 % melhoraram e 12,5 % não sofreram alterações. A equipe de Enfermagem tratou os pacientes segundo o protocolo, com AINEs e Metamizol, predominantemente. Os demais foram dirigidos à avaliação médica, e outros 40 pacientes recusaram o tratamento. **Conclusões:** existe alta porcentagem de pacientes que melhoram sua percepção da dor após o primeiro tratamento receitado pela equipe de enfermagem de triagem. Os resultados sugerem revisar e atualizar o protocolo no primeiro tratamento.

PALAVRAS-CHAVE (Fonte: DeCS)

Triagem; protocolos; enfermagem; emergências; emergências médicas; dor aguda

When managing a problem, like pain, if measures are not taken to relieve it, it will increase until becoming a considerable inconvenience for the patient's state of health, not only from the physical plane, but also the emotional.

According to this research, nurses make decisions about providing care to patients who attend the emergency service with pain, bearing in mind their individual needs and according to a stipulated protocol.

It must be considered that a timely intervention is more effective, rapid, and economic. This study demonstrates that a timely intervention improves the quality of care to patients attending emergency services with pain.

Introduction

Pain is a highly unpleasant and very personal sensation that cannot be shared with others; it is difficult for the patient to communicate it and nurses cannot feel or see what the patient experiences. Differences in the perception of pain, as well as the different causes that produce it, face the nursing professional with the objective of developing a standard plan to relieve it and provide comfort (1-3).

The evaluation and effective treatment of pain is an important part of nursing care and represents a high-priority problem in itself, given that it is one of the most frequent motives for consultation in emergency services. Besides supposing physiological and physical danger to health and recovery, severe pain requires care and immediate treatment (4-7).

According to the World Health Organization (WHO) and Human Rights Watch, treatment against pain is a human right. Globally, between 25 % and 29 % of the population suffers pain (8), and this is the principal motive for consulting in emergency services (approximately 78 %, of which one third reports intense pain). In spite of this, treatment is far from being optimum; a standard of care must be developed ranging from non-pharmacological strategies to protocolized therapeutic regimens, seeking to make the emergency service a place for comprehensive and humanized management of pain (9).

According to the Spanish Society of Pain, pain is one of the most frequent motives of consultation in emergency services, either for his exclusive condition, or for the pathologies that cause it. Although its prevalence (near 78 %) is very high, numerous studies have demonstrated that management of this symptom is often inadequate and that patients may receive suboptimal analgesic treatment due to inadequate guidelines, insufficient doses, or inappropriate medications (1, 8). To treat pain, it is primordial to detect and evaluate it, both in triage, as during the stay in emergency.

One in every five Europeans suffers from pain and, of those who endure it, four experience acute pain. Only in the 28 countries of the European Union, 100-million people live with pain and half of these receive no treatment or are not even treated seriously (10). These data show the need to consider the treatment of pain and access to medical care a public health priority (11).

Currently, the intake of analgesics and antialgic neuromodulation techniques are the most-often used to mitigate pain, while invasive techniques remain relegated in the background. The importance of the patients' self-management and self-control is highlighted, as long as they do not fall into indiscriminate self-prescription. Some of the non-pharmacological techniques used in the treatment of pain are pressure/massage, vibration, surface heat and cold; application of cryogenic fluids, like menthol; transcutaneous electrical nerve stimulation, and other techniques could be added to these, like distraction and relaxation (12-13).

According to data from the Spanish Society of Pain and the World Bank (an organism dependent on the United Nations), 182 pain units exist (14), which represents for Spain, with its 45,840,050 inhabitants in 2018, a special pain treatment unit for every 251,868 inhabitants (15).

Compared with neighboring countries of the European Union, and as indicated by the French Ministry of Health and Social Protection, throughout the French region, including Réunion, Martinique, Guadeloupe, Guyana, Corsica, and Mayotte, there are 266 pain treatment units or centers, that is, one unit for every 248,898 inhabitants (16).

Each hospital in Spain has a pain unit dependent on the Ministry of Health, Social Policy, and Equality according to ministry sources (17).

The Spanish Society of Pain reports not having any record of the assessment and treatment protocol of acute pain in hospital emergency services, and this is the reason for this study.

The general objective of this study was to evaluate the acceptance and effectiveness in the initial and secondary treatment applied in patients with acute pain in the emergency service by triage nursing. The specific objectives are 1) evaluate the acceptance of initial and secondary treatments of the protocol applied and 2) evaluate the effectiveness of initial and secondary treatments of the protocol applied.

Method

Cross-sectional, observational descriptive study of quantitative approach, with measures of central tendency (mean, median, and mode) (19-20) and a type of non-random convenience or accidental sampling.

The sample was constituted by all the patients who attended emergency services with pain, independent of the type of pathology, and who needed treatment against said symptom in a hospital emergency service during a six-month period (July to December 2016). It includes a total of 348 subjects, bearing in mind the following exclusion criteria: Patients without pain, those under 14 years of age, and those who, due to deficiencies, could not answer the questionnaire.

An *ad hoc* protocol was created to treat acute pain in the emergency service, created by the medical and nursing staff, and endorsed with the approval by the Center's teaching/research commission, the pharmacology service, and the ethics service.

The questionnaire has three parts, with a total of six questions, varying dichotomous and closed questions with multiple answer and closed questions (annex I) [6].

According to Grinspun (18), to collect the data, it is recommended to use a questionnaire previously approved and validated by the hospital center, besides including different quantitative measurement instruments to assess pain.

The first part collects sociodemographic data of the sample; the second part evaluates the pain on arrival to emergency; the third specifies the first treatment after the assessment of pain; and the fourth estimates the pain after 45 minutes from the start of the first treatment and indicates a second treatment, if needed, with its subsequent reevaluation.

Prior to putting into practice the questionnaire, a pretest was performed on 10 % of the sample of 348 patients to evaluate the efficacy and reliability of the questionnaire. These 35 questionnaires, out of the total 348, are not been part of the final result, nor were they part of the sample and served to adapt and demonstrate the suitability of the data collection instrument.

The respondent answered the questionnaire with the intervention of a pollster (nurses from the emergency service who were instructed on the management of the questionnaire during a two-month period, through seminars and training) in charge of asking the patient, through informed consent, to participate in the study (annex II).

According to the protocol, the triage nurse interviews the patient and evaluates the intensity of the pain suffered, through the pain numerical scale (NS) (0: No pain; 1-3: Slight; 4-6: Moderate; 7-10: Intense); then, the starts the *non-pharmaceutical therapeutic measures* (postural, local cold) if the pain ranges from slight to moderate (1-3), or the *pharmaceutical therapeutic measures* if the pain ranges from moderate to severe (4-6). When intense pain exists (7-10), the nurse remits the patient to the physician to indicate other therapy not included in the protocol, as in allergies or extreme pain. After 45 minutes, the patient is reevaluated and, in function of the new evaluation, the protocol is followed, varying or repeating the treatment, if necessary.

The study was approved by the Ethics, Research, and Teaching Committee at the Doctor Negrín University Hospital of Gran Canaria, according with current legislation, and was conducted with respect to the principles stated in the Helsinki Declaration and the norms of good clinical practice.

Description of the sample characteristics is made by summarizing the nominal variables with the absolute and relative frequencies of their categories, and those of the scale with mean or median and percentiles (P5 - P95), once proven its normal distribution of probabilities with the exploration of its histograms and results from the Kolmogorov-Smirnov test.

All the statistical tests used were bilateral at a significance level of $p < 0.05$, and the corresponding calculations were exe-

6 Editor's note: Annexes mentioned in this article are available in: https://aquichan.unisabana.edu.co/index.php/aquichan/rt/suppFiles/10727/0. Contact can also be made with the corresponding author or with the journal.

cuted with the IBM Statistical Package for Social Sciences (SPSS Statistics 19) for Windows.

Results

Upon breaking down the samples, information provided by the questionnaires was evaluated.

Of the 348 participants, 58.3 % were women, and 41.7 % were men. The mean age was 48.14 years, with a standard deviation of 19.58.

The NS evaluation scale was used by 100 % of the nurses.

The values yielded by the pain index, after evaluating the 348 patients, are reflected in Table 1.

Table 1. Pain index values

Pain index	Frequency	HUGC Dr Negrin* (%)
1	0	0
2	0	0
3	5	1.44
4	12	3.45
5	27	7.7
6	35	10.1
7	69	19.9
8	64	18.4
9	45	12.9
10	91	26.14

* Doctor Negrín University Hospital of Gran Canaria.

Source: Own elaboration.

After applying the protocol with the initial treatment, 80.17 % of the patients experience improvement, which permits considering an appropriate index for the comparative evaluation of the methodologies to reduce pain in patients, according to what is shown in Table 2.

Twenty four patients (7.18 % of the sample) required a second treatment. The assessment of pain after the second treatment is shown in Table 3.

Table 2. Results of the assessment of pain after the initial treatment

Assessment of pain	Frequency	Percentage (%)
Rejection	40	11.49
Improvement	279	80.17
No change	26	7.47
Worsens	3	0.87

Source: Own elaboration.

Table 3. Results of assessment of pain after the second treatment

Assessment of pain	Frequency	Percentage (%)
Improvement	21	87.5
No change	3	12.5

Source: Own elaboration.

On their arrival to the emergency service, and after the pain assessment, patients were proposed the application of a first pharmacological treatment, according to the protocol (AINES or Metamizole), or non-pharmacological (local cold or heat or postural change). Some patients, according to the criteria of the triage nurse or upon doubt, were evaluated outside the protocol in a "medical evaluation" or, simply rejected any therapeutic measure against pain. All this is reflected in Table 4, which shows that 145 patients were treated according to the protocol by the nursing staff, with majority administration of AINES and Metamizole; 13 were treated according to the non-pharmaceutical therapeutic measures; 150 were remitted to medical evaluation; and 40 rejected treatment.

Table 4. Treatment used according to the nursing protocol

	Initial treatment						
	Rejection by the patient	Change of posture	Local cold	Local heat	AINES	Metamizole	Medical evaluation
HUGC Dr. Negrín	40	10	1	2	90	55	150

* Doctor Negrín University Hospital of Gran Canaria.

Source: Own elaboration.

The treatment used after the medical evaluation (that is, treatments prescribed outside the nursing protocol) is reflected in Table 5.

Table 5. Initial treatment used after the medical evaluation in Spain

	Initial treatment after medical evaluation					
	Paracetamol 1g	Dexketoprofen	Tramadol	Morphine	Buscopan	Others
HUGC Dr. Negrín	27	34	37	3	34	15

* Doctor Negrín University Hospital of Gran Canaria.

Source: Own elaboration.

Table 6 exposes, after the initial medical and nursing evaluation, the degree of patient satisfaction according to the treatment applied. An improvement of 3.5 % is observed in the patients due to the postural change; of 0.3 % due to local cold; of 0.7 % due to local heat; of 30.1 % due to AINES; of 17.5 % due to Metamizole; of 6.8 % due to Paracetamol 1g; of 11.46 % due to Dexketoprofen; of 12.18 % due to Tramadol; of 1.07 % due to morphine; of 10.75 % due to Buscopan; and of 5.37 % due to other treatments.

Table 6. Perception of pain according to the treatment used in Spain after the initial

Spain	Frequency	Patient rejection	Improve-ment	No change	Worsens
Patient rejection	40	40	0	0	0
Postural change	10	0	10	0	0
Local cold	1	0	1	0	0
Local heat	2	0	2	0	0
AINES	90	0	84	5	1
Metamizole	55	0	49	5	1
Paracetamol 1g	27	0	19	8	0
Dexketoprofen	34	0	32	2	0
Tramadol	37	0	34	3	0
Morphine	3	0	3	0	0
Buscopan	34	0	30	3	1
Others	15	0	15	0	0
Total	348	40	279	26	3

Source: Own elaboration.

Discussion

Pain is one of the principal reasons for consultation in the emergency area. The presentation of a study during the commemoration of the Global Day Against Pain showed that 43 % of those admitted to a hospital emergency service report acute pain as principal symptom (21). According to Abiuso, for cases of pain in general, the percentage increases to 78, and a third of such complain of intense pain (9). In turn, this study reveals that 38.21 % of the patients manifests intense pain and 39.08 % report very intense pain, a figure that reaches 77.29 % when bearing in mind both levels, which coincides with the results by Abiuso (9).

According to Potter (22), pain assessment comprises two important components: A history of pain to obtain data on the patient (onset, location, duration, aggravating factors, prior treatments that were effective or ineffective) and direct observation of the patient's behavioral and physiological responses to achieve objective comprehension of a subjective experience. In patients experiencing acute pain, the nurse focuses on the location, quality, intensity, and early intervention. In this case, pain assessment coincides with data by Abiuso and Potter and centers on the evaluation of acute pain, through an NS, in an emergency service.

According to Moreno (23), pain treatment comprises two basic interventions by nursing: Pharmacological and non-pharmacological. Pharmacological interventions, protocolized and through medical prescription include using opiates, non-opiates/AINES and adjuvant medications; cognitive-behavioral interventions encompass distraction techniques, relaxation techniques, visualization, biofeedback, therapeutic touch, and hypnosis.

This study used the different treatments available in the protocol, after nurse assessment, from physical postural techniques (cold or heat, etc.) to the administration of the medications indicated in the protocol, according to the degree of pain evaluated. Two types of pain assessment scales were permitted: The Algoplus and the NS; the latter was used in all the cases studied by the nurses.

The NS is equivalent to other pain assessment scales and serves as a guide on the effectiveness of the treatments. For most people, the value of 5 or more represents significant interference in daily life and the need to do something to counteract it, although not differentiating the psychological, emotional, and

social components. In the protocol (annex III), the evaluation of the patient's pain treatment includes their response to it, modifications of the pain, and the patient's perception regarding the effectiveness of the treatment.

In this study, 14.4 % report slight pain; 21.26 %, moderate pain; 38.21 %, intense pain; and 39.08 %, very intense pain, which is why it is essential to implement these types of protocols with consensual measures and delve into them, given the positive results obtained.

It may be considered that, in their vast majority, patients are satisfied with the treatments applied, with no need to require a second treatment; 80.17 % report improvement after the first treatment and 87.5 %, after the second treatment. These data permit reconsidering the first treatment and the subsequent pain assessment in the protocol used.

Regarding analgesic non-pharmacological treatments, it is highlighted that, discarding patients who rejected any type of treatment against pain, non-pharmacological analgesics were used (postural change, local cold or heat) in 4.2 % of the cases, a treatment proven effective in 100 % of the cases.

An important percentage of patients do not accept the treatment proposed for pain according to the protocol, and the bibliography consulted has not revealed data to compare this information.

The importance and monitoring of the pain treatment in emergency services suggest the need to include pain as the fifth vital sign, performing the nursing assessment through the NS to contemplate it in the nursing care plan (NCP). The idea is to quantify, communicate, and register the intensity from the onset, and provide the data in the anamnesis, physical exam, observation, and follow up to offer more rational and individualized treatment.

In 2001, the Joint Commission for the Accreditation of Health Organizations established new norms to manage pain in hospitalized patients. Thereafter, pain management is recognized as the fifth vital sign. Although pain is a subjective symptom, quite difficult to measure with precision, it was sought for each hospital to develop adequate policies and procedure to assess pain and the use of analgesics as treatment. Adults are urged to evaluate the initial pain, using a scale from 0 to 10, as well as to evaluate the analgesic effect of the medication used (24).

Currently, according to the Spanish Society of Pain, no evidence exists of any protocol on the evaluation and treatment of acute pain in hospital emergency services in Spain, that is, in non-programmed access of patients to the hospital; therein, the validity of this study because it is the first to establish a pain assessment protocol in an emergency service.

In relation with patient satisfaction after the treatment administered by the triage nurse, according to the protocol established on arrival to the emergency service, it may be said that such treatment has a good assessment in terms of pain perception, given that 89.19 % of the patients report improvement.

Conclusions

The scales proposed in the questionnaires were the Algoplus and the NS, the two scales that adapt best to the type of patients attending emergency services, but the NS was chosen by the triage nurses in all the questionnaires studied.

A high percentage of patients exists who assess positively the first treatment after the triage nurse interview and the application of the pain protocol, which shows the importance of treating pain and improving the care quality and healthcare provided to patients attending the emergency service with pain.

During the second treatment, after the medical evaluation, the percentage of patients who assess positively is higher, although there is an important percentage that does not accept the treatment proposed for pain according to the protocol. These results suggest revising and updating the first treatment and the assessment of pain in the protocol applied.

During the initial treatment, the medications used most often were the AINES and Metamizole; after the medical evaluation, these were Dexketoprofen, Paracetamol 1g, Tramadol, Buscopan, and Morphine. This shows the need to evaluate incorporating Paracetamol and opiates to the initial nursing protocol. Likewise, it must be considered that physical means, like cold, local heat, or a simple postural change have served to reduce, by a high percentage, pain in patients treated.

From the data analyzed, it may be considered that, in their majority, patients are satisfied with the treatments applied in the emergency service, after being evaluated by the triage nurse, and

waiting to be seen by the medical staff. Use of AINES, Metamizole, Paracetamol 1g, Dexketoprofen, Tramadol, and Buscopan is highlighted. This leads to evaluating positively the effectiveness of the treatment applied in patients with acute pain in the emergency service by triage nursing.

Recommendations

To guarantee the reliability of the use of the protocols or practice recommendations, specific continuous formation programs should be elaborated in the treatment of pain for triage nurses, and medics in the emergency services. Likewise, workshops should be conducted to develop communication skills, self-control of emotions, and adequate management of available tools.

Finally, along with the need for internal coordination among the staff, it is necessary to periodically update the protocols and recommendations, studying the indicators of their compliance through the quality management programs at the hospital center. Pain should be included as fifth vital sign.

Conflict of interests: None declared.

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