

Non-pharmacological analgesia strategies in adult and elderly endovascular procedures: a scoping review

Estratégias não farmacológicas na analgesia de adultos e idosos em procedimentos endovasculares: revisão de escopo
Estrategias no farmacológicas en la analgesia de adultos y ancianos en procedimientos endovasculares: revisión de escopo

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ABSTRACT

Objectives: To identify the main non-pharmacological analgesia strategies used in clinical practice in adult and elderly endovascular procedures. **Methods:** scoping review, undertaken in July 2021, on 12 national and international data sources. The recommendations of the JBI and the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews checklist were followed. Thirteen studies were selected to compose the sample, with no time or language cut-off. **Results:** the main non-pharmacological strategies found were cold compress, use of music, and reflexology. The most prevalent procedures were coronary angiography, peripheral venous catheterization, and femoral catheter removal. Pain measurement by Visual Numeric Scale and Visual Analog Scale described pain reduction in adults and elderly. **Conclusions:** the main non-pharmacological strategies found were cold compress, use of music, and reflexology, which reduce pain in adults and the elderly. **Descriptors:** Adult; Aged; Complementary Therapies; Analgesia; Endovascular Procedures

RESUMO

Objetivos: identificar as principais estratégias não farmacológicas utilizadas na prática clínica na analgesia de adultos e idosos em procedimentos endovasculares. **Métodos:** é uma revisão de escopo, realizada em julho de 2021, em 12 fontes de dados nacionais e internacionais. Seguiram-se as recomendações do JBI e do *checklist Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews*. Foram selecionados 13 estudos para compor a amostra, sem recorte temporal ou de idioma. **Resultados:** as principais estratégias não farmacológicas encontradas foram: compressa com gelo, uso da música e reflexologia. Os procedimentos mais prevalentes foram: angiografia coronariana, cateterismo venoso periférico e retirada de cateter femoral. A mensuração da dor pela Escala Visual Numérica e Escala Visual Analógica descreveram redução da dor de adultos e idosos. **Conclusões:** as principais estratégias não farmacológicas encontradas foram compressa com gelo, uso da música e reflexologia, que reduzem a dor de adultos e idosos. **Descritores:** Adulto; Idoso; Terapias Complementares; Analgesia; Procedimentos Endovasculares.

RESUMEN

Objetivos: identificar las principales estrategias no farmacológicas utilizadas en la práctica clínica en la analgesia de adultos y ancianos en procedimientos endovasculares. **Métodos:** revisión de escopo, realizada en julio de 2021, en 12 fuentes de datos nacionales e internacionales. Siguió las recomendaciones del JBI y del *checklist Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews*. Fueron seleccionados 13 estudios para componer el muestreo, sin recorte temporal o de idioma. **Resultados:** las principales estrategias no farmacológicas encontradas fueron: compresa con hielo, uso de la música y reflexología. Los procedimientos más predominantes fueron: angiografía coronaria, cateterismo venoso periférico y retirada de catéter femoral. La medición del dolor por la Escala Visual Numérica y Escala Visual Analógica describieron reducción del dolor de adultos y ancianos. **Conclusiones:** las principales estrategias no farmacológicas encontradas fueron compresa con hielo, uso da música y reflexología, que reducen el dolor de adultos y ancianos. **Descriptorios:** Adulto; Anciano; Terapias Complementarias; Analgesia; Procedimientos Endovasculares.

INTRODUCTION

Endovascular procedures are usually performed in catheterization laboratories with a diagnostic or therapeutic function. They can be performed by venous or arterial puncture, using radiopaque catheters to reach the heart or peripheral and cerebral vessels. Pain is a complication resulting from these procedures, which can be reported at the access site, in the thoracic or lumbar region, either because of the patient's positioning in bed, the restriction of movement of the approached limb, or complications originated during the procedure⁽¹⁾.

On the other hand, peripheral venous catheterization is performed for therapeutic purposes by means of pharmacological conducts such as medication. This procedure may cause peripheral vascular trauma or injuries due to the presence of the catheter or the solutions infused through it. In this context, it is a procedure that can cause pain, changes in skin integrity, color, or temperature. The nurse participates in this whole process, from the insertion of the peripheral catheter to the monitoring of its viability and functioning. The nurse also acts with measures of prevention or rehabilitation in cases of manifestations of deep vein thrombosis through diagnoses, interventions, and nursing assessment⁽²⁾.

Pain is conceptualized by the International Association for the Study of Pain (IASP) as an unpleasant sensory or emotional experience and is related to a potential or actual tissue injury. Being subject to the influence of biopsychosocial factors, an individual's pain report must be taken into account considering the negative effects of pain on his well-being and psychological functions. In this sense, the expression of pain can be given, among other forms, through the pain report⁽³⁾.

With the objective of better guiding therapeutic conducts, it is necessary to measure this pain. Such measurement is performed mainly by means of unidimensional tools, although the literature describes the importance of using multidimensional tools to obtain a more complete evaluation, since, in the clinical practice, the main aspect evaluated is pain intensity⁽⁴⁾. Therefore, it is essential that the multiprofessional team act in the physical, psychosocial, and psycho-emotional evaluation to better understand the suffering that affects the patient⁽⁵⁾.

Nursing seeks to meet the biopsychosocial and spiritual needs of the human being through actions of prevention, promotion, recovery, and rehabilitation in health, integrating different practices with its ethical, aesthetic, empirical, personal, and political knowledge. Moreover, its professional practice must be based on knowledge and on the search for objective and subjective information about the patient. Thus, it is necessary that pain be recognized as the fifth vital sign for the multiprofessional team to pay attention to which is the most appropriate therapy to be used based on a multidimensional care model⁽⁶⁾.

In this context, pain management may be performed by pharmacological methods, using analgesics with risk of adverse effects, or using non-pharmacological strategies that are of low risk and cost, as well as aiding in pain mitigation. Non-pharmacological strategies are subdivided into physical, involving massage, application of heat or cold, Transcutaneous Electrical Nerve Stimulation (TENS); or they can be psychological,

such as the use of music, distraction, and relaxation techniques. However, this classification varies with the literature and may also include body and mind interventions such as hypnosis, manual healing methods like aromatherapy, and herbal medicine. Such methods are described as effective in pain management⁽⁷⁾.

It is known that endovascular procedures are usually painful and sometimes do not receive adequate management for analgesia and reassessment of pain. Pharmacological strategies are still widely used although several non-pharmacological strategies can be used as adjuvants to this treatment for pain relief in painful procedures. Therefore, this review is justified as it contributes to the scientific community by providing a synthesis of data on the main non-pharmacological strategies in adult and geriatric analgesia in endovascular procedures; thus, it allows the identification of existing gaps in knowledge, besides suggesting the development of new studies on the subject.

This study also contributes to health care by providing possible strategies for clinical practice in order to make it more effective and humanized. This is positive for the patient by potentially improving his experience with painful endovascular procedures and reducing the need for high doses of analgesics.

In order to locate other reviews or protocols similar to this one, an initial search was conducted in July 2021 on the platforms: Database of Abstracts of Reviews of Effects (DARE), International Prospective Register of Systematic Reviews (PROSPERO), JBI Clinical Online Network of Evidence for Care and Therapeutics (CONNECT+), Open Science Framework (OSF), and Cochrane Library. No research related to the proposed objective was identified, which justified the need for this review. Thus, the descriptors present in the articles found in this previous search did not subsidize the elaboration of the search strategy for the present review.

OBJECTIVES

To identify the main non-pharmacological analgesia strategies used in clinical practice in adult and elderly endovascular procedures.

METHODS

Ethical aspects

Considering that the data included in this review were in the public domain, this study was not submitted to the Research Ethics Committee (REC).

Study design

Scoping review aimed at mapping the main concepts about a given research area, preparing a synthesis of the evidence found in the literature, identifying gaps still existing in knowledge, as well as identifying the need for future new research. It was developed according to the guidelines of the JBI Reviewers' Manual⁽⁸⁾, following the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklist⁽⁹⁾. This research was also registered in the OSF platform.

The steps proposed by the JBI for the development of a scoping review were followed, namely: 1 - development of the objectives and research question; 2 - describing the inclusion and exclusion criteria and aligning them with the objectives and research question; 3 - planning the evidence search, selection, extraction, and presentation; 4 - searching for evidence; 5 - selection of evidence; 6 - extraction of evidence; 7 - analysis, presentation, and synthesis of results⁽⁸⁾.

The Population, Concept, and Context (PCC) strategy was adopted to elaborate the following research question: "What are the main non-pharmacological strategies used in clinical practice in analgesia of adults and elderly in endovascular procedures?". Thus, the mnemonic was outlined as follows: P - adults and the elderly; C - non-pharmacological analgesia strategies used in clinical practice in adults and elderly in endovascular procedures; C - endovascular procedures in any hospital unit.

According to the United Nations Organization (UNO), the definition of elderly varies among countries. In Brazil, individuals aged 60 years or more are considered elderly⁽¹⁰⁻¹¹⁾. To classify the age of adults, these age groups are divided into three: young adult, from 20 to 40 years; mature adult, from 40 to 60 years; and elderly adult, over 60 years of age⁽¹²⁾.

Study period and location

The search for evidence available in the literature was conducted in July 2021 by consulting nine electronic databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), Gale Academic Onefile, Google Scholar, Latin American and Caribbean Health Sciences Literature (LILACS), Science Direct, Scientific Electronic Library Online (SciELO), Scopus, Web of Science, Wiley Online Library, the Cochrane and PubMed virtual libraries; and in the grey literature through the Catalogue of Theses and Dissertations (CAPES). The following descriptors were used in English according to the Medical Subject Headings (MeSH): adult, aged, complementary therapies, analgesia, pain management, endovascular procedures, cardiac catheterization, angioplasty. The crossing of the descriptors was carried out using the Boolean operators AND and OR. The search strategy was adapted for each data source, as illustrated in Chart 1.

Population and sample

A total of 100,559 studies were found in the selected data sources. After the removal of paid materials and exclusions based on initial reading of titles, abstracts, and removal of duplicates, 13 studies were selected to compose the results.

Inclusion and exclusion criteria

We included scientific articles published online in full, available through the remote access of the *Comunidade Acadêmica Federada* (CAFe) [Federated Academic Community], without time or language restrictions, that answered the proposed research question. Studies that focused on the pediatric population and/or that did not answer the research question were excluded.

Chart 1 - Syntax for searching the articles within data sources, Natal, Rio Grande do Norte, Brazil, 2021

Source	Syntax
Catalogue of Theses and Dissertations (CAPES)	<i>(adult OR aged) AND (complementary therapies OR analgesia OR pain management) AND (endovascular procedures OR cardiac catheterization OR angioplasty)</i>
Cochrane Library	<i>adult OR aged in Title Abstract Keyword AND complementary therapies OR analgesia OR pain management in Title Abstract Keyword AND endovascular procedures OR cardiac catheterization OR angioplasty in Title Abstract Keyword - (Word variations have been searched)</i>
CINAHL	<i>(adult OR aged) AND (complementary therapies OR analgesia OR pain management) AND (endovascular procedures OR cardiac catheterization OR angioplasty)</i>
Gale - Academic OneFile	Keyword: <i>adult OR aged</i> AND Keyword: <i>complementary therapies OR analgesia OR pain management</i> AND Keyword: <i>endovascular procedures OR cardiac catheterization OR angioplasty</i>
Google Scholar	<i>(adult OR aged) AND (complementary therapies OR analgesia OR pain management) AND (endovascular procedures OR cardiac catheterization OR angioplasty)</i>
LILACS	<i>adult OR aged [Words] and complementary therapies OR analgesia OR pain management [Words] and endovascular procedures OR cardiac catheterization OR angioplasty [Words]</i>
PubMed	<i>((adult OR aged)) AND (complementary therapies OR analgesia OR pain management) AND (endovascular procedures OR cardiac catheterization OR angioplasty)</i>
Science Direct	<i>(adult OR aged) AND (complementary therapies OR analgesia OR pain management) AND (endovascular procedures OR cardiac catheterization OR angioplasty)</i>
SciELO	<i>(adult OR aged) AND (complementary therapies OR analgesia OR pain management) AND (endovascular procedures OR cardiac catheterization OR angioplasty)</i>
Scopus	<i>(TITLE-ABS-KEY (adult OR aged) AND TITLE-ABS-KEY (complementary AND therapies OR analgesia OR pain management) AND TITLE-ABS-KEY (endovascular AND procedures OR cardiac AND catheterization OR angioplasty))</i>
Web of Science	TOPIC: <i>(adult OR aged) AND TOPIC: (complementary therapies OR analgesia OR pain management) AND TOPIC: (endovascular procedures OR cardiac catheterization OR angioplasty)</i>
Wiley Online Library	<i>"adult OR aged" anywhere AND "complementary therapies OR analgesia OR pain management" anywhere and "endovascular procedures OR cardiac catheterization OR angioplasty" anywhere</i>

Study protocol

The search for the articles was performed by two researchers, independently and at the same time, to perform an initial screening based on reading the titles, abstracts, and further evaluation regarding the inclusion criteria. Duplicates were counted only once. Disagreements between reviewers regarding the inclusion of the material, at any stage of the development, was decided by discussion among the authors or by a third researcher consulted

to read the material in its entirety as a tiebreaker for the composition of the final sample. No software was used to manage the references or remove duplicates.

Analysis of results

The studies selected as sample were fully retrieved, analyzed in detail by two independent reviewers, and fed into a Microsoft Excel form previously prepared by the researchers, with data on: reference, country, year, sample of studies, type of study, non-pharmacological analgesia strategies for adults and elderly, endovascular procedure performed, pain scale used to measure pain intensity, and outcome presented. This information was arranged in two charts, in a manner aligned with the aim of this scoping review. A narrative summary accompanied the results in both charts and presented the main data that addressed the research question.

RESULTS

Figure 1 shows the process of identification, screening, eligibility, and inclusion of studies for the selection of the results sample. Noteworthy, there was no reverse search based on the reference list of the selected studies, so there was no additional inclusion of articles.

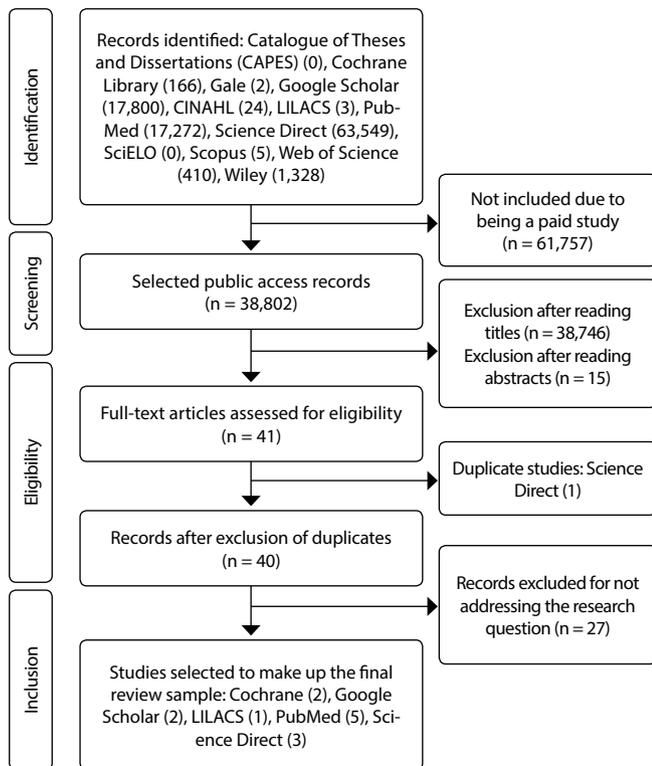


Figure 1 - Flowchart of the search for articles adapted from PRISMA-ScR, Natal, Rio Grande do Norte, Brazil, 2021

Chart 2 presents the characterization of the studies included in the review based on the following data: reference, country, year, sample, and study type.

Chart 2 - Characterization of the studies included in the review, Natal, Rio Grande do Norte, Brazil, 2021

Reference/Country/Year	Sample	Study Type
S1 ⁽¹³⁾ /Iran/2019	80 patients with a mean age of 55.1 ± 8.1 years	Randomized clinical trial
S2 ⁽¹⁴⁾ /Italy/2018	72 patients with a mean age of 61.9 and 63 years in the intervention and control groups	Randomized clinical controlled trial
S3 ⁽¹⁵⁾ /Turkey/2017	104 patients from 51 to 70 years	Randomized clinical trial
S4 ⁽¹⁶⁾ /China/2006	43 patients from 35 to 75 years or more	Randomized clinical controlled trial
S5 ⁽¹⁷⁾ /Iran/2015	62 patients from 35 to 69 years	Randomized clinical trial
S6 ⁽¹¹⁾ /Brazil/2017	385 patients with a mean age of 61 ± 13 years	Cross-sectional study
S7 ⁽¹⁸⁾ /Iran/2020	120 patients from 30 to 60 years	Randomized clinical trial
S8 ⁽¹⁹⁾ /South Korea/2012	100 patients with a mean age of 48.2 and 51.2 years in the experimental and control groups	Randomized clinical controlled trial
S9 ⁽²⁰⁾ /Pakistan/2019	200 patients from 55 to 66 years or more	Quasi-experimental study
S10 ⁽²¹⁾ /Iran/2020	90 patients with a mean age of 60.60 in the intervention group and 57.75 years in the control group	Randomized clinical controlled trial
S11 ⁽²²⁾ /Italy/2019	140 patients with a mean age of 58.1 and 60.2 years in each group	Prospective observational study
S12 ⁽²³⁾ /Egypt/2018	120 patients from 19 to 65 years	Quasi-experimental study
S13 ⁽²⁴⁾ /Turkey/2013	100 patients from 18 to 75 years	Randomized clinical controlled trial

S – Study.

The articles were mostly published in Iran (30.76%), Italy (15.38%), and Turkey (15.38%), with prevalence of studies published in the years 2019 (23.07%), 2020 (15.38%), 2018 (15.38%), and 2013 (15.38%). The sample encompassed adult and elderly individuals with a minimum age of 18 years and a maximum age of 75 or older. Most studies were of the randomized clinical trial type (69.23%), followed by quasi-experimental (15.38%).

Chart 3 shows the synthesis of publications included in the review containing data on: reference, non-pharmacological strategies used for pain relief, endovascular procedure performed, pain scale used to measure pain intensity, and outcome.

Chart 3 - Summary of the studies included in the review, Natal, Rio Grande do Norte, Brazil, 2021

References	Non-pharmacological strategies	Procedure	Pain scale used	Outcome
S1 ⁽¹³⁾	Aromatherapy by inhaling three drops of peppermint essence dripped onto a piece of absorbent cotton, 10 centimeters from the nose, for five minutes	Intravenous catheterization in cardiac patients with a 20G Angiocath	Numerical Pain Rating Scale (NRS)	Significant reduction in pain intensity caused by IV catheterization
S2 ⁽¹⁴⁾	Distraction technique by asking several questions on a variety of subjects	Peripheral Venous Catheterization (PVC)	NRS	Significant reduction of pain in the experimental group, when compared to the control group
S3 ⁽¹⁵⁾	Ice pack compress at the site of the femoral catheter for 20 minutes before catheter removal	Withdrawal of the femoral catheter four hours after percutaneous coronary intervention	NRS	Pain intensity in the experimental group was significantly lower compared to the control group at catheter removal
S4 ⁽¹⁶⁾	Patients' music-of-choice based on a pre-selection of slow, soft, lyric-free music, applied via an MP3 player with headphones	C-clamp procedure after percutaneous coronary interventions	Universal Pain Assessment Tool (UPAT)	Significant reduction in pain scores, systolic blood pressure, heart and respiratory rates, and oxygen saturation, mainly at 45 minutes after the intervention
E5 ⁽¹⁷⁾	18-minute guided imagery through a headset	Coronary angiography	Pain scale not specified	The levels of pain, mean arterial pressure, pulse, and respiratory rate in the experimental group were reduced, but had no significant differences in the control group.
S6 ⁽¹⁾	Turning and positioning in bed in only four patients (3% of the sample)	Endovascular diagnostic or therapeutic procedures in hemodynamics	NRS and Verbal Rating Scale	41% of patients who had some intervention for pain management did not have their pain levels reassessed Outcomes were not reported
S7 ⁽¹⁸⁾	Foot reflexology for 16 minutes, eight minutes on each foot. Gentle pressure was applied, stimulating the solar plexus and spinal areas	Coronary angiography	Visual Analog Scale (VAS)	The level of back pain in the experimental group was significantly lower than the control group at all four moments of verification
S8 ⁽¹⁹⁾	TENS, with two electrodes placed in the radial area of the dominant forearm, delivering a stimulation of 80 pulses per second for 20 minutes	Venous cannulation with a 22-gauge cannula	VAS	The pain intensity of the experimental group was significantly lower than the control group
S9 ⁽²⁰⁾	Cold compress of saline solution (100 ml) applied within the first 15 minutes after femoral arterial catheter removal	Femoral arterial catheter removal	NRS	Significant reduction of ecchymosis, hematoma, and pain levels
S10 ⁽²¹⁾	Hand reflexology with pressure, according to the Ingham method, for 20 minutes, ten minutes on each hand. Three areas were pressured: solar plexus, heart, and pituitary	Elective coronary angiography	NRS	Reflexology significantly reduced the pain and fatigue levels of the patients
S11 ⁽²²⁾	Hypnotic communication as adjuvant to analgesia during the procedure	Transcatheter ablation for atrial fibrillation	NRS	The procedure became painless in 77.9% of the cases. There were reductions in anxiety, procedure time, and use of sedatives
S12 ⁽²³⁾	Reflexology, stimulating the points of the solar plexus, pituitary gland, and heart. Foot massage, for 30 minutes, 15 minutes on each foot. Prior to the procedure it was performed from the ankle to the toes with moderate pressure	Cardiac catheterization	VAS	Reduction of pain levels in the experimental group, presenting a statistically significant difference at the post-intervention moment
S13 ⁽²⁴⁾	Music therapy with Turkish classical music, as it is slower and more relaxing, before and during port insertion	Insertion of the port catheter in oncologic patients	VAS	Reduction in heart rate, respiratory rate, blood pressure, adrenocorticotropic hormone, and cortisol, 30 minutes and immediately after the procedure. Pain and anxiety scores were significantly reduced

We observed great variation in non-pharmacological strategies for pain relief in endovascular procedures. However, some strategies were more prevalent, such as reflexology (23.07%), cold compress (15.38%), and music (15.38%). The other interventions: aromatherapy, distraction technique, guided imagery, repositioning in bed, TENS, and hypnotic communication only appeared once in separate studies, each representing 7.69% of the sample.

These strategies were mainly adopted in procedures such as coronary angiography (23.07%), peripheral venous catheterization (23.07%), and femoral catheter removal after percutaneous coronary intervention (PCI) (15.38%). The other procedures: C-clamp procedure after PCI, diagnostic or therapeutic procedures in hemodynamics, transcatheter ablation for atrial fibrillation, cardiac catheterization, and port insertion each accounted for only 7.69% of the sample.

For the measurement of pain intensity, most studies cite the NRS, accounting for 53.84% of the sample, followed by the VAS (30.76%). The verbal rating scale and the UPAT were mentioned only once, each corresponding to 7.69% of the studies. Only one study did not mention the pain scale used.

As per outcome, 92.3% of the publications described a significant reduction in pain intensity levels in adult and elderly patients. Only one study (7.69%) did not mention its outcome. Besides pain reduction, other positive points were also presented, such as the decrease in blood pressure, heart and respiratory rate (23.07%); anxiety (15.38%); ecchymosis and hematoma (7.69%); fatigue (7.69%); adrenocorticotrophic hormones and cortisol (7.69%); time of procedures, and use of sedatives (7.69%).

DISCUSSION

It is essential that professionals be able to identify, describe, and assess pain, without underestimating it, to promote a more adequate treatment and improve patients' quality of life. For this, the nurse becomes a key player in the evaluation and recording of pain levels, since it is in the absence of this control that pharmacological or non-pharmacological methods are sometimes not used⁽²⁵⁾.

In this review, the main non-pharmacological strategies for pain relief in endovascular procedures found were reflexology (23.07% of the studies), cold compress (15.38%), and the use of music (15.38%).

Reflexology consists of a massage with the digital pulp on reflex points of the feet, hands, and ears that reflect areas of organs, glands, and muscles. It can be used with the purpose of improving the symptoms of some diseases, as well as reducing pain and stress in the individual⁽²⁶⁾. In this context and contributing to the findings of this review, a randomized clinical trial was conducted to test this strategy in the management of acute low back pain in nursing staff. The VAS was used to measure pain intensity, and significant contributions of reflexology were described in the attenuation of pain evaluated, whether immediate or indirect⁽²⁷⁾.

In cryotherapy, substances with temperatures between 0 °C and 18 °C are applied to the tissues in order to cool them, for therapeutic purposes, by reducing perfusion, heat, redness, edema, pain, and metabolism rate. Thus, there is a decrease in tissue impairment, damage recovery time, and return of functionality

of the affected portion. Ice can be applied for 20 minutes every two hours in acute injuries by means of ice packs, with or without water, or by using the immersion strategy⁽²⁸⁾.

Similar to the findings of the present study, an experimental study was performed in Saudi Arabia with 62 patients who had an arteriovenous fistula (AVF) and were on hemodialysis to evaluate the efficacy of cryotherapy in relieving pain due to AVF cannulation in this population. Cold compress was applied to the arm that was contralateral to the limb with the fistula, ten minutes prior and up to the time of the puncture by the nurses. Significant differences were found in the level of pain before and after the intervention. Thus, the results indicated cryotherapy as an effective intervention in pain mitigation during puncture of the AVF in hemodialysis patients⁽²⁹⁾.

As for music, it has been described in the literature as an effective method for relieving the most diverse types of pain due to its distraction mechanisms, diverting attention from the painful stimulus, which implies the reduction of fear, stress, and pain. Other ways mentioned relate to the release of endorphins, reduction of heart rate, respiratory rate, and blood pressure, activation of the dopaminergic system and the parasympathetic nervous system⁽³⁰⁾.

A randomized clinical trial conducted in Iran with 114 patients sought to evaluate the effect of music on analgesia during fistula puncture in hemodialysis patients. Using VAS, pain intensity was measured one minute after the intervention was performed. The music group had access to their music preference, listening to it through headphones six minutes prior to the fistula puncture till the end of the procedure. Positive effects on pain relief were described for the music group, compared to the headphones and control group, during fistula puncture in hemodialysis patients⁽³⁰⁾.

Another study sought to evaluate the effects of music on conscious sedation during invasive cardiac catheterization. In this intervention, the patients listened to their musical preferences at the moment the procedure occurred until it was over. Positive effects of using this intervention were described in decreasing the dependence of drugs for sedoanalgesia, back pain, post-traumatic stress disorder, and lower dosages of anxiety and pain medications. Thus, music therapy was considered effective as an adjunctive therapy to the use of drugs for anxiety and pain during cardiac catheterization⁽³¹⁾.

Individuals who present pain and receive care from a skilled nursing team that makes use of tools for pain measurement and assessment have positive results in their pain management and receive individualized treatment options for their case. Therefore, the use of scales to measure, systematize care, and improve pain assessment is crucial as long as the healthcare team is trained to do so⁽³²⁾. In this review, the two scales most mentioned among the included studies were: NRS (53.84% of the sample) and VAS (30.76%).

The NRS is a pain assessment scale that can be used verbally or in writing, and is quantitatively scored from 0 to 10, with 0 representing no pain and 10 representing extreme pain⁽³³⁾. The VAS, however, is a millimeter line that ranges from no pain, as its minimum limit, to great pain, as a maximum limit. On this scale, individuals should mark the distance that best describes the intensity of their pain⁽³⁴⁾.

In order to maintain better control over pain and verify the efficacy or adverse effects of the treatment offered to the patient, the re-evaluation process should not be neglected. Therefore, pain must be assessed initially and followed up during treatment using the same measurement tools and in the same situations in which the patient mentions it. Therefore, re-evaluation will occur when care is modified; after the patient mentions pain for the first time and whenever it is reported; after pharmacological or non-pharmacological interventions; at the beginning of the effect, at its peak, and about six hours after the first time it was evaluated⁽³³⁾.

Integrative and complementary health practices are strategies that have been adhered to by nursing, such as herbal medicine, massage, acupuncture, homeopathy, music therapy, therapeutic touch, aromatherapy, meditation, reiki, cryotherapy, and hydrotherapy. In addition to pain relief, these practices also contribute to distracting thoughts of pain, the approximation between patient and professional, stress relief, physiological and blood pressure regulation, energy balance, promotion of body and mind well-being, improvement of anxiety, mood, relaxation, comfort, strengthening of the immune system, and decreased use of medication⁽³⁵⁾.

Study limitations

The limitations of this scoping review include the number of sources of evidence used, restricting the sample to the studies

included in them. In addition, the present work is also limited by the amount of free full-text publications available to date.

Contributions to the field

This study can contribute by provisioning possible strategies to be used in clinical practice, helping in the development of a more humanized and effective assistance based on scientific evidence. It can also help patient experience with the painful procedure, especially by potentially influencing the decrease in the use of high dosages of analgesics.

CONCLUSIONS

The main non-pharmacological strategies found were cold compress, the use of music, and reflexology. Also mentioned were aromatherapy, distraction, guided imagery, repositioning in bed, transcutaneous electrical nerve stimulation, and hypnosis. The most prevalent procedures were coronary angiography, peripheral venous catheterization, and femoral catheter removal after PCI; and there was a predominance of pain intensity measurement by Visual Numeric Scale and Visual Analog Scale, which described significant pain reduction in adult and elderly patients. Thus, the importance of using non-pharmacological strategies to mitigate pain in adults and elderly patients after endovascular procedures is highlighted.

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