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Meta-analysis of Pain Control Tools in Children

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ABSTRACT

There are several tools for pain controlling in children, but the priority of using tools in different conditions is still unknown to many researchers. Therefore, this study aimed to review the tools used to control pain in children. All of the studies done in the All of The world (from 2007-2017) using the words of pain control tools, pain control, pain instruments, pain in children and children's pain measuring instruments from the country's databases, including Magiran, MEDLIB, SID and Iranmedex as well as Latin databases such as Pubmed, scopus and scincedirect were reviewed and data were analyzed using meta-analysis. Out of 200 articles reviewed in the field of pain control tools in children, 125 original articles were reviewed who had Inclusion criteria entered the study. The most commonly used pain control tools were Distraction, EMLA Cream, Cooling spray, Skin massage, Local anesthetic, Buzzy, J-tip. The method of Distraction in many ways and the use of EMLA cream are most used in controlling children's pain, although the use of Cooling sprays, Skin massage and Local anesthetic are also acceptable methods for controlling child pain.

Keywords: Pain Control Tool, Children, Meta-Analysis
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INTRODUCTION

Pain is an unpleasant, emotional and complex phenomenon. Today, the American Pain Board names pain as the fifth sign of vitality [1]. Failure to relieve pain despite negative physiological responses such as changes in vital signs and hyperkalemia can also have negative psychological effects such as delirium, anxiety, post-traumatic stress disorder, decreased interactions with others, sleep disturbances, motion impairment, Reduce appetite and increase health care and hospital care costs[2]. The long-term effects of pain in children is the predicted fear of future procedures due to the negative memories of past procedures, future pain sensitivity due to changes in how the nervous system works, reducing the effectiveness of the analgesia, the difficulty in understanding the procedures and Fear of needle [3]. Pain control is an important part of health care [4]. Therefore The optimal control of pain in children begins with the examination and evaluation of pain and after determining the type of pain and its effective factors, the treatment plan is began and, depending on the child's condition, pharmaceutical and non-pharmaceutical interventions are adopted and then the effectiveness of the methods is evaluated [5]. On the other hand, Undesirable pain control increases risk of hospital day and health care costs [6]. Also

Nurses play a key role in controlling child pain [7]. Pain control is one of the priorities of treatment for children and full pain treatment is an Ethical affair [8]. According to the results of the research, venipuncture is one of the largest sources of pain in the pediatric hospitalization, and among children aged 6 to 12 report high levels of tension and pain [9]. According to nursing standards, comfort and relief of pain are a priority for patients. Therefore, it is important to pay attention to the concept of pain in child patients by nurses. Identifying the type of pain, how to study and introduce different pain relief and control methods in presentation Nursing care and achieving the goals set are very effective [10]. In the past, the use of anesthetic drugs was a major remedy for pain relief, which sometimes did not work. These drugs were often expensive and had their own side effects. It was better to relieve pain before using the drug, use of non-pharmaceutical methods. There are several non-pharmacological methods to reduce stress and anxiety, one of the important end effective methods is the Distraction [11]. It seems that Distraction can help the patient to cope with pain and its related experiences, and is often accompanied by relaxation and pleasant impressions that provide comfortable and convenient conditions for the patient [12]. These methods are the most practical, simplest and least costly non-pharmacological pain relief [13]. Examples of distraction activities include listening to music, singing, playing, watching television, bubbling and a 3D image. Despite the variety of these methods, it is better to choose an activity that is appropriate for the evolution of the child's age [14]. In a situation where the child has a very severe pain, Distraction may not have much effect [15]. In general, appropriate tools and tools should be used to control pain in children. Therefore the present study was conducted with the aim of systematically reviewing pain control instruments in children.

MATERIALS AND METHODS

In this systematic review, internal and external studies conducted in the last 10 years using the keywords of pain control tools, pain control, pain control, pain, children pain in internal database including Magiran, MEDLIB, SID and Iranmedex, as well as Latin database such as Pubmed, scopus and scincedirect was examined. Data sources of the selected articles were also collected. All articles were reviewed regardless of language, place of publication, and manner of doing the work. After reviewing and collecting all the articles being searched, duplicate articles were removed. In the next step, the articles that were found on inclusion criteria for entering the study were reviewed, which articles included of the object of pain and pain control tools in children, and common tools for pain control such as EMLA cream, deviant thinking methods Various, coolant spray, skin massage, topical anesthetic, Buzzy, J-tip, Valsalva maneuver, use of lidocaine and oral glucose, extracted articles on the pain of surgical and venereal pain, as well as articles published in Particularly, the control and pain control tools in the intensive care units and finally the pain pills It for comparison or one group were studied. Exclusion criteria also included data from a case report and non-full article articles. All the ethical issues necessary for the correct use of the extracted articles and the standards for publishing the work were observed.

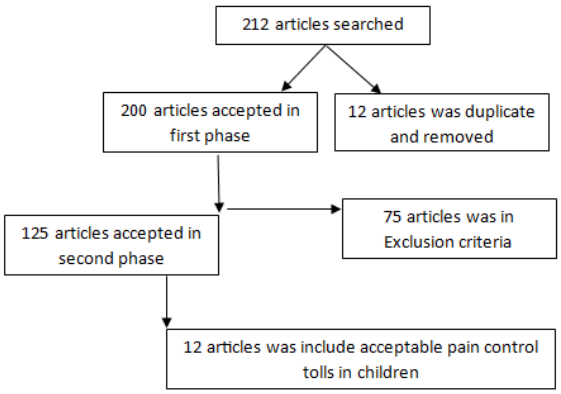

Figure 1: searched articles

RESULTS

All 212 papers that were included in the study were initially reviewed, 12 articles was removed due to duplicate, 75 article was in Exclusion criteria and removed, 125 articles that examined the tools and methods of pain control in children, were selected in the second phase. Finally 12 articles that were including acceptable pain control tolls in children were analyzed. The most important pain control tools found in the selected research articles included Distraction, EMLA cream, coolant spray, skin massage, local anesthetics, Buzzy and Tip-J devices. Meanwhile, the deviation method is the most commonly used method for painful procedures that takes a short time. Therefore, the most common interventions

to reduce pain sensation in children is deviation with the use of five senses that, in addition to pain, also reduces the therapeutic tension.

DISCUSSION

Children's behavioral responses vary according to age and type of disease [16]. In the below we report most common method used by researchers for pain control in pediatric pain.

Thought Deviation

The method of deviance is the most commonly used method for painful procedures that lasts for a short time [17]. The deviation is thought to be due to the use of five senses, which, in addition to pain, also reduces the therapeutic tension. , Diverse methods of thinking such as using toys, bubble makers, music players, video games, 3D glasses, cyberspace, etc. are as effective as pharmaceuticals and even better [18].

EMLA Cream

Lidocaine and Prelocaine superficial anesthetics known as EMLA Cream, this worm is used to reduce the pain caused by the ingestion and angiogenesis, which temporarily prevents pain, when this The drug is placed on the nerve's pathway, which can well cause skin and muscle paralysis [19].

Cooling spray

This special nerve spray stimulates the perception of cold feelings, and the nerves suppress the sense of pain. Following the initial cooling effect, there is a period of warming the position that ultimately suppresses the perception of the pain [20].

Skin massage

On how to massage the body, the skin is the first point of contact between the receptor and the massage therapist. One of the major effects of pressure on the skin is stimulation of the sensory receptors of the skin. This stimulation may cause effects such as relaxation and pain relief. The central nervous system responds to massage therapy by stimulating sensory receptors to massage therapy, improves circulation of the lumbar circulation and circulation of fluid, supplies fresh food and oxygen to the tissues, and helps to exhaust toxic and recovery. Massage increases the levels of endorphins (pain killers) and increases the secretion of the serotonin hormone (mood moderator), and it is proven that the hormone releases cortisol [21].

Local anesthetics

Temporarily prevents pain and when it is placed on the nerve pathway, it can produce muscular paralysis, local anesthetic is present in two different categories. The amide and local anesthetic is structurally part of the cocaine derivative, with the exception that it does not produce vasoconstriction and high blood pressure [22]. The Buzzy device is a vibrational coolant used to control pain [23]. J-tip device: A needleless device for subcutaneous delivery of lidocaine, which is used to control pain in invasive interventions such as venipuncture [24].

CONCLUSION

Due to medical advances and the prevalence of aggressive procedures for diagnosis and treatment, avoidance of pain in many children is not possible and pain control has not been adequately addressed. In the care of the child in the hospital, all nurse's attention is focused on providing therapeutic and therapeutic treatment, and important issues such as mental health and secondary harm are ignored, while attention to fear and tension is created. It is very important to follow the treatment and care procedures and it is necessary to think and provide conditions to maintain the comfort and comfort of the child in the clinical setting.

Yaripoor and colleague [25] show that there is a few methods for pain control in neonate under maxillofasial surgery were used by Iranian researcher to neonate pain control. Also alizadeh and colleague [26] show that there is a few method for pain control in pediatric under surgery was used by Iranian researcher to pediatric pain control in operation room. Therefore Pain in children, if not detected early, can have adverse consequences. Many children under the age of 3 who can not express their pain correctly and in high quality are at greater risk for the consequences of pain, so being and being used in a timely manner Diagnostic methods and the availability of pain control tools can prevent subsequent complications in children. One of the

best practices that can be used in this field and the child's relaxation is the use of non-pharmacological pain control measures. However, these measures should be such as not to create a disorder in the treatment process and for nursing and the severity of the child's resistance to these procedures is reduced so that nurses are encouraged to apply these kinds of measures. Using pain control tools, nurses can make aggressive interventions easier and faster. Also, the likelihood of failure and repeated efforts is reduced, so nurses' satisfaction is provided with the comfort of the children. In general, the use of the divergence method and the EMLA cream are most used in controlling the pain of children.

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