Introduction

The pain suffered by the child in oncological treatment goes beyond the pain of cancer. It can be related to other factors of physical, emotional, social and spiritual origin, being conceptualized with total pain [1]. This is defined as an unpleasant sensory and emotional experience that may be related to actual or potential tissue injury [2]. It is known that chemotherapy treatment requires invasive procedures such as punctures, being very painful for children.

Cancer pain goes beyond the physical dimension, and it has individual and collective meaning, influenced by the individual’s life experience, able to change family dynamics and compromise daily activities. This painful experience is also subjective and deserves special attention by all the staff involved in the care of the child in cancer treatment, in particular, the nursing that provides care frequently. Pain control in children with cancer is a challenge because of the difficulty that the nursing team has in choosing the pain measurement scale, especially for children 0 to 2 years old [3].

Pain assessment in children needs a differentiated view that values their description, and the aspects of cognitive and linguistic development are fundamental for the interpretation of the painful experience [4].

Health technologies are produced to optimize and standardize care, aiming to improve care, with the objective of evaluating, quantifying, and directing care [5]. In the treatment of pain in children, strategies that can favor the relief and control of pain one must be thought. The aim of this study was to identify the available technologies for the management of cancer pain in the literature.

Method

It is a qualitative bibliographical research carried out by an integrative review of the literature, which is a research method that consists of the construction of a broad analysis of publications and contributes to discussions about methods and research results, as well as reflections on the performance of future studies [6].

The following guiding question was established for the development of the study: what technologies have produced that aim to promote the relief of cancer pain in children? The search was performed in pairs, independently and concomitantly. The collection period was from July to August 2017, through online access in databases in the context of health: SCOPUS, PubMed/MEDLINE, LILACS, AND CINAHL. Dor oncológica [oncology pain]; criança [children]; protocols [protocols]; Tecnologia [Technology]; diretrizes [guidelines]. The Boolean operators AND or OR were used. Initially, 81 articles were selected, and only 9 were chosen.

The criteria established were: all articles published with technologies available in full in journals indexed in electronic databases, addressing technologies that promote pain relief. The exclusion criteria were theses and editorials. Data were organized into categories. Only 9 articles answered the study question

Results and Discussion

From the analysis of the articles emerged two thematic categories, nursing care in oncologic pain and Assistive technologies to promote the relief of cancer pain.

Nursing care in cancer pain

Nursing care identified in the articles was pain assessment...
administration of pharmacological and non-pharmacological measures [7,9], approaching when the sedation and analgesia were initiated [9], and monitoring of children on sedation [10]. Safe administration of drugs is a challenge for nurses who are in care, as it is known that these drugs produce many side effects. Nursing in health services is directly involved with drug administration and needs to have an understanding of the whole process.

The guidance and training of parents [11], children and adolescents regarding the use of technologies [11,12] is another important aspect, since cancer pain must be treated with all available resources.

**Assistive technology for the promotion of cancer pain relief**

Three articles addressed pain relief with pharmacological measures. Assistive technologies have been used as a strategy to minimize the total pain experienced by children with cancer. Pain management training was conducted through lectures, feedback and active participation, resulting in improved quality of pain management [7]. Based on the perceptions and experience of the medical and nursing staff for the use of the protocol, dealing with the adequate use of analgesia and sedation, the team favored the protocol and considered its effective use [8]. The third article deals with sedation during painful procedures and resulting in decreased suffering during procedures, less physical restraint and amnesia reporting during procedures [10]. The distraction of the child was approached in four articles, the technologies were a therapeutic toy [8], virtual reality [13], drawing on distraction techniques [11] and a tablet program [14]. Three of the technologies were tested during painful procedures. All the technologies were pain-relieved.

The massage emerged as a technology and proved to be effective in reducing pain interference on the floor, contributing to relief and reducing interference in the child’s activities, despite doubts about the effectiveness of this message protocol as it was evaluated in a small sample. However, its use was recommended for improving well-being and quality of life [15]. The use of the application was tested by adolescents, resulting in an improvement in pain management [12]. Aiming at the control of cancer pain, these technologies appear as important strategies to promote pain control and pain relief.

**Conclusion**

We can conclude that the technologies suggested have shown an effect on the control and relief of oncological pain in children and adolescents and pharmacological and non-pharmacological measures complement each other so pain can be minimized.

**Acknowledgment**

None.

**Conflict of Interest**

The authors report no conflicts of interest.

**References**

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