Nursing interventions for children and adolescents with câncer during the chemotherapy treatment
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Objective: To identify, from the scientific production, nursing actions for children and adolescents during the chemotherapy treatment; Classify nursing actions, identified in the literature, according to the domains of taxonomy NIC (Nursing Interventions); Compose a frame of reference with the main Nursing Interventions, according to Taxonomy NIC, for children and adolescents during the chemotherapy treatment. Method: This is an integrative review that aims to identify nursing interventions for children and adolescents with cancer during chemotherapy. Results: We identified ten nursing actions. These were classified according to the domains of taxonomy NIC (Nursing Interventions). Conclusion: The psychological intervention, professionals support and the presence of the family with the child and/or adolescent generate positive results during treatment and after the end of it. The main focus on this research is to show that the nursing care provided to children and adolescents with cancer should not be limited to the biological body, but also consider them as beings in growth and development. Descriptors: Nursing care, Child/Adolescent, Chemotherapy.
Cancer is a disease process where the cells proliferate abnormally, ignoring the regulation of growth signals in the adjacent environment to cells.\textsuperscript{1,20} With an age limit of 18 years old, it is observed a predominance of leukemia cases, reaching 45\% of all cases of pediatric tumors, followed by lymphomas with 25\%. In the case of tumors considered solid, tumors of the Central Nervous System are the most incidents and can affect 22\% of all childhood cancers, affecting mainly children from 4 to 9 years old. In about 50\% of cases, children are under 5 years old at diagnosis. However, 15\% of them occur in children under 2 years old.\textsuperscript{2,21}

“Most pediatric tumors show histological findings similar to fetal tissues at different stages of development, being considered embryonic”\textsuperscript{2,19} They are different from adult tumors by histological origins, different clinical behaviors, differences in primary local, and with lower latency periods, growing quickly becoming quite invasive and responding better to chemotherapy.

“The survival of children with cancer has improved over the past 30 years. Before that, it was a disease often associated with death, while today in most developed centers, its cure goes beyond the range of 70\% of cases”.\textsuperscript{4,24} “The survival of pediatric cancer is related to factors such as sex, age, and location, extent and type of tumor, besides the ease and timeliness of diagnosis, quality of care and social support among others”.\textsuperscript{4,24}

“The early diagnosis allows for a less aggressive treatment, when the load condition is lower, curability with larger cure and smaller sequels of the disease or treatment”.\textsuperscript{4,36}

Early diagnosis (...), which includes measures for lesions detection in early stages of the disease from clinical and symptoms signs. Followed by an effective treatment is currently considered one of the main forms of intervention that can positively influence cancer prognosis in children and adolescents, reducing the morbidity and mortality by the disease.\textsuperscript{4,36}

“O que dificulta, em muitos casos, a suspeita e o diagnóstico do câncer nas crianças e nos adolescentes é o fato de sua apresentação clínica ocorrer através de sinais e sintomas que são comuns a outras doenças mais frequentes”.\textsuperscript{4,45} Por este motivo,

“In many cases, clinical presentation occurring through signs and symptoms that are common to other, more common diseases hampers the suspicion and the diagnosis of cancer in children and adolescents”.\textsuperscript{4,45} For this reason,

cancer diagnosis depends on the patient effort and his family to seek medical service when symptoms appear and the doctor’s insight and wisdom to consider the possibility of cancer, establishing the prompt diagnosis and appropriate forwarding.\textsuperscript{3,12}
“Cancer treatment can be accomplished by surgery, radiotherapy, chemotherapy or bone marrow transplantation. In many cases, it is necessary to combine more than one methods. Chemotherapy “is the treatment of choice for the hematopoietic system diseases and solid tumors, (...)” which are the two major groups, subdivided the tumors of pediatric patients. “Cancer chemotherapy is chemical substances use, alone or in combination in order to treat malignant neoplasms”. Chemotherapy medicine can cause some side effects, depending on the type of medicine used and the treatment stage. The most common effects are nausea, vomiting and decreased number of blood cells, which can lead to anemia, by decreasing number of red blood cells; bleeding by decreasing the number of platelets, and infection, by reducing the number of leukocytes.

The Federal Nursing Council (COFEN) established in 2009, Resolution 358 “providing the Systematization of Nursing Care and the implementation of the Nursing Process in public or private environments, in which occurs the Nursing professional care, (...)”.

The Systematization of Nursing Care (SAE) is a scientific methodology that has been increasingly implemented in healthcare practice, providing greater security to patients, improving quality of care and greater autonomy for nursing professionals.

SAE uses the Nursing Process as part of its work process. “The Nursing Process is a deliberate behavior to meet the health care and nursing needs of people” and consists of five phases: the Nursing History, the Nursing Diagnosis, Nursing Planning, the Implementation and Evaluation of Nursing.

The phase of Implementation of the Nursing Process, “focuses on the resolution of nursing diagnosis and interdependent problems of the patient and achieving the expected results, meeting the health needs of the patient”.

In 1987, the Nursing Classification NIC (Nursing Interventions Classification), began to be developed because of the need for a nursing interventions classification to standardize the language used by nurses in the description of the care that they performed with patients. NIC (2008) contains 7 domains, 30 classes, 514 interventions and more than 12,000 activities and “it defines nursing intervention as any treatment that is based on clinical judgment and knowledge, that the nurses do to improve patient results”.

Caring for a child or an adolescent with cancer is always a challenge for nurses, because the knowledge gained by this throughout training cannot be considered sufficient to treat holistically a child or an adolescent with cancer.

It is known that being present, monitor, support, and also share and learn from each patient requires an availability that does not come without a preparation, which usually is not offered for vocational training or institutional spaces for sharing and development.

According to Law 8069 of July 13, 1990, which “disposes about the Status of Children and Adolescents (...)”, considered a child up to twelve years old and adolescents, between 12 and 18 years old.

Since 1989, the World Health Organization (WHO) recognizes adolescence as a time of vital importance and sets this period of human life as a fundamentally biological process of organic
Childhood is the phase of playing, interaction with other children and discoveries. In both phases, individuals are developing. In these two moments of life, hospitalization generates changes in daily life, causing great suffering, interfering with the individual’s quality of life and, in most cases, affecting their childhood or adolescence.

For this reason, besides the nurse establish nursing interventions for physical care of the child or adolescent, it is essential that they also have sensitivity to establish actions that enable an easier treatment less unpleasant, not harming their development and especially not interrupting their childhood or adolescence. This can be considered the greatest difficulty by the nurse to take care of a pediatric patient affected by cancer.

**Guiding question**
- What are the actions developed by nurses during chemotherapy treatment of children and adolescents recommended in the scientific literature?

**Object**
Systematization of Nursing Care (SAE) by nurses during chemotherapy treatment of children and adolescents.

**Objectives**
- To identify, from the scientific production, nursing actions for children and adolescents during chemotherapy treatment;
- To classify the nursing actions in the literature, according to the fields of NIC taxonomy (Nursing Interventions);
- To compose a reference table with the main Nursing interventions, according to NIC Taxonomy, for children and adolescents during chemotherapy.

**Justification**
The proposed theme of this study, aims not only nursing actions for the general care of children and adolescents with cancer, but also interventions to be established by the nurse in order to help them having a better adherence to chemotherapy, resulting in reduced suffering, increased acceptance and hope for cure. It is a matter of great importance to the nurse because, despite all the complications encountered during treatment, the greatest difficulty is to make the patient do not miss their childhood or adolescence during their hospitalization.
METHOD

This is an integrative review that is “a method that provides the synthesis of knowledge and the incorporation of the applicability of significant study results in practice”. For its preparation the next stages of revision were followed: elaboration of the guiding question, search or sampling in the literature, data collection, critical analysis of the included studies, discussion of the results and presentation of the integrative review.

The literature review was carried out through consulting the Virtual Library in Health database (BVS), to books and protocols of the Ministry of Health, in order to identify the nursing interventions for children and adolescents with cancer during chemotherapy treatment. Inclusion criteria for the selection of articles were greater adherence to the theme, articles developed by nurses, from 2000 to 2011 and texts written in Portuguese.

The research began as using the following key words: nursing care, nursing process, integral health care of children and adolescents, cancer and chemotherapy, but articles were not found. It was then necessary to refine the key words, combining them and modifying them. The second search combined the key words “nursing care”, “child/adolescent” and “chemotherapy”. There were 21 full texts found, and only one fulfilled the inclusion criteria. The third search combined “nursing care” and “child”. There were 1421 full texts found, and of them, 56 had neoplasms as main subject and only 1 followed the inclusion criteria. The fourth search combined “nursing care” and “chemotherapy”. There were 181 full texts found, and only 2 had pediatric nursing as main subject and of them only one had adherence to the theme. The fifth search combined “child” and “chemotherapy”, but there were not articles found according to inclusion criteria. Therefore, 2 articles were selected for analysis.

A table that identified the title of the article, the journal, the source, the year of publication, the authors academic information, the origin institution, the state, the research method used, made the organization of selected production and there was partnership with other professionals. Then the selected articles were read in full and approximately 10 nursing actions were identified.

With this research, it is intended to classify the nursing actions, found in the literature, according to the area of NIC Taxonomy and also compose a reference table with the main Nursing Interventions, according to NIC Taxonomy, for children and adolescents during chemotherapy treatment.
RESULTS AND DISCUSSION

After selection of articles, we found that nursing care to children and adolescents with cancer during chemotherapy treatment is very little researched, resulting in only 2 articles for analysis. The selected productions are shown in Table I.

After observation of Table I, we found that article 01 was published by a journal from São Paulo and 02 from Paraná, although the institution and the state of both articles are from São Paulo. It is observed similarity between the source and the chosen research method between the two articles. As for the authors, there is the participation of both teachers and students and there was not partnership of other professionals in the preparation of the study. It is important to highlight that both articles were published before the Ordinance GM/MS number 2439 of December 8, 2005 that “established the National Policy of Oncology Care: Promotion, Prevention, Diagnosis, Treatment, Rehabilitation and Palliative Care, to be implemented in all federal units, respecting the three levels of government”. 14

Table I - Demonstrative of final results finais of electronic search.

<table>
<thead>
<tr>
<th>ARTICLE</th>
<th>TITLE</th>
<th>JOURNAL</th>
<th>SOURCE</th>
<th>YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Care to children and adolescents with cancer: a phase of intrathecal chemotherapy</td>
<td>Revista Latino-americana de Enfermagem</td>
<td>LILACS</td>
<td>2004</td>
</tr>
<tr>
<td>02</td>
<td>The nurse and the care in pediatric oncology</td>
<td>Revista Arquivos de Ciências da Saúde</td>
<td>LILACS</td>
<td>2005</td>
</tr>
</tbody>
</table>

Table II highlights the main nursing actions recommended in the literature and are classified according to areas of NIC Taxonomy. NIC (2008) contains seven areas, 30 classes, 514 interventions and more than 12,000 activities. The following are the areas of NIC and their proper concepts.

Area 1 - **Physiological Basic**: Care that supports physical functioning.

Area 2 - **Physiological complex**: Care that supports the homeostatic regulation.
Area 3 - Behavioral: Care that supports the psychosocial functioning and facilitates changes in lifestyle.

Area 4 - Safety: Care that supports protection against damage.

Area 5 - Family: Care that supports the family unit.

Area 6 - Health System: Care that supports the effective use of the health care system.

Area 7 - Community: Care that supports the health of the community.

Table II - Classification of nursing interventions according to NIC areas.

<table>
<thead>
<tr>
<th>Nursing actions</th>
<th>NIC AREAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available information to children/adolescents about the disease and treatment;</td>
<td>AREA 3: Behavioral.</td>
</tr>
<tr>
<td>Prepare the child to receive the procedures;</td>
<td>AREA 4: Safety.</td>
</tr>
<tr>
<td>Adopt measures for the relief of pain and discomfort;</td>
<td>AREA 1: Physiological Basic.</td>
</tr>
<tr>
<td>Include the family in the care process, as well as protect the family, child and adolescent of decision-making;</td>
<td>AREA 5: Family.</td>
</tr>
<tr>
<td>Meet the children and their families to provide them support not only technical, but also emotional;</td>
<td>AREA 3: Behavioral; AREA 5: Family.</td>
</tr>
<tr>
<td>Help to overcome challenges and adapt in new health conditions or disease;</td>
<td>AREA 3: Behavioral.</td>
</tr>
<tr>
<td>Assist the emotional needs of children and their families;</td>
<td>AREA 3: Behavioral; AREA 5: Family.</td>
</tr>
<tr>
<td>Support patients and their families to alleviate the suffering brought by problems arising from the disease and treatment;</td>
<td>AREA 3: Behavioral; AREA 5: Family.</td>
</tr>
<tr>
<td>Seek to understand the feelings of the children, realize situations experienced by them and glimpse concrete ways to care;</td>
<td>AREA 3: Behavioral.</td>
</tr>
<tr>
<td>Learn to listen to themselves and to the patient;</td>
<td>AREA 3: Behavioral.</td>
</tr>
<tr>
<td>Identify emerging needs in situations where care is developed;</td>
<td>AREA 1: Physiological Basic;</td>
</tr>
<tr>
<td>Assess possibilities and limitations of care.</td>
<td>AREA 2: Physiological complex.;</td>
</tr>
<tr>
<td></td>
<td>AREA 4: Safety;</td>
</tr>
<tr>
<td></td>
<td>AREA 6: Health System.</td>
</tr>
</tbody>
</table>

After analysis of Table II, we obtained the following results: 7 Actions for Area 3 (Behavioral); 4 for the Area 5 (family); 2 for Area 1 (Physiological basic) and 4 (Safety); 1 for Area 2 (Physiological complex) and 6 (Health System) and 0 for the Area 7 (Community).

The predominance of actions of Area 3 (Behavioral), shows that care that supports the psychosocial functioning and facilitates changes in lifestyle are the most important to be offered by the nurse to children and adolescents during chemotherapy, followed by Area 5 (Family) which highlights the importance of care that supports the family unit. The family “is the first responsible for the health care of its members, as well as having potential that can be developed to better meet their health needs”.

Finally, Table III shows the main nursing interventions, according to NIC taxonomy, for children and adolescents during chemotherapy based on the nursing actions identified in the literature.

Table III - Nursing Interventions according to NIC Taxonomy.

<table>
<thead>
<tr>
<th>NURSING ACTIONS</th>
<th>CODE</th>
<th>NURSING INTERVENTIONS (NIC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available information to children/adolescents about the disease and treatment;</td>
<td>5540</td>
<td>Improved to LEARN; Facilitation of LEARNING.</td>
</tr>
</tbody>
</table>
The lived experience of a child or adolescent with cancer is difficult, whatever the age of the patient, the nature of the disease, its prognosis, development and treatment result. In the confrontation with a serious diagnosis, pain and possible death, the patient has to deal with the separation, more or less durable with the family, school and social environment, with the loss of sense of identity, with the changes in the body, with the physical consequences, with issues related to history, family, society and even with so many other subjective elements mentioned in this experience. The patient has, at last, to face new and complex issues, often without being able to count on the support of his families, as affected as he is.19

In a research of children with cancer, the following feelings and emotions experienced were identified during cancer treatment: fear, pain, shame, feeling different, keeping hurt, trying to escape and accepting the situation.

The diagnosis of cancer foregrounds child’s vulnerability to bringing up a number of vital questions about the meaning of life, and many feelings. Therefore, both the impact of the diagnosis and treatment of cancer produce severe emotional trauma - negative feelings - manifested in the form of fear of death and all that they live, pain, loneliness, depression, sadness, separation, hopelessness, sadness, anger and opposition, among others. With the progress of treatment, the manifestation of a prognosis and the healing result, the children then begin to show positive feelings such as happiness, satisfaction, compassion for other children, ... and unfortunately the constant fear to suffer all over again, that all suffering is not enough to ensure his breath of life.19

Adolescents are particularly vulnerable. Cancer, periods of hospitalization, multiple changes cause anxiety, distress, call into question their affective choices, their social identity issues and sometimes sexual, their projects carried out and those unrealized...
As for the psychological profile of the child or adolescent with cancer, there is no characteristic profile. Psychological reactions to the disease and treatment are natural and depend on the previous structure of the patient’s personality, family, family history. However, the disease can modify sometimes in an important, serious and persistent way, these structures and produce multiple effects. Often the cancer is committed intensely the relationship the patient has with the image (largely unconscious) of his own body, with the confidence and the esteem he feels for himself, (...).

With the difficulties of the disease, the patients expects their parents to be always there watching them at all times; however, disease severity makes parents feelings of guilt that lead to denial of the situation and the overprotective attitudes. They feel responsible for the disease, they may lose the rules of everyday life (stop imposing limits), change the family balance and neglect the care of siblings. The common jealousy between the brothers is in reality justification. Early patient’s grieving process from family members is commonly observed. The family tends to be isolated, close around themselves.

After the child’s cancer diagnosis, the first family reaction is to not acceptance. After the diagnosis of cancer can no longer be questioned, it is as if the world ended for the family. The family and the child are facing various periods of hospitalization, frequent readmissions, aggressive and painful therapy, difficulty in separation of family members, disruption of daily activities, limited understanding of the diagnosis, financial problems, distress, pain, constant fear of death, among others.

“Watching the cancer patient goes beyond a prescription care: it involves monitoring his way and his family, (...) experiencing situations of the time of diagnosis to the terminal illness”. It is important that the patient and family understand the disease, its treatment, the possible consequences and prognosis. Health professionals must establish this communication using precise words, naming the body parts involved, explaining the therapeutic approaches, assessing the likely duration of the treatment, its rhythm and its outcome, always using an accessible language, respecting the degree of patient education and family involved.

The information cannot be considered at once, there will be questions, the situation is difficult and complex so that there is concern and anxiety for the patient and his family that does not fail to fulfill their role. Therefore, it is essential that professionals are available to repeat the information many times as necessary. “When this happens, patients and family members can participate in the situation, rather than feel frightened by the power of the disease (...).” In addition, being made aware of the nature of the disease, severity, duration of treatment, its pace and possible complications, the patient will be
reassured”. In every procedure performed, it is necessary to repeat the child and family guidance already provided, thus establishing a dialogue atmosphere”.

It is important that nursing professionals use strategies to the child knows what is happening, participate in the whole process of the disease and express his fears, doubts, anxieties, feelings and imaginary, according to his own mechanisms, enabling to get diagnostic and intervention plans that are able to comfort, ease suffering and establish an emotional bond with the child and his family.

From the moment that a family monitor the child’s treatment, “also becomes a customer in need of nursing care”.

Decreased appetite, weight loss, headache, insomnia, dizziness and cold are the main symptoms of the caregivers. This highlights “the importance of promoting support to parents”. The family care is an essential part of patient care with cancer, since it is the main source of support throughout the treatment process.

CONCLUSION

“The lack of care to emotional reactions causes often psychological difficulties and serious damage that may hinder the acceptance of the diagnosis, treatment and sometimes leading to discontinuance”. The psychological intervention, the support of professionals and the presence of the family with the child and/or adolescent generate positive results during treatment and after the end of it. The main focus of this research is to show that the nursing care provided to children and adolescents with cancer should not be limited only to assist the biological body, but also to consider them as beings in growth and development.
REFERENCES


