

REVIEW ARTICLE

Palliative care in pediatrics

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In this paper we discuss different aspects of palliative care in pediatrics and how the definition has changed and evolved. We also define what a terminally ill patient is, list the objectives of care, and how to implement care practices. We describe different ways to diminish physical, social, emotional and spiritual suffering. The dying process is described according to the different stages of child development. The spiritual aspects are now considered an important part of the approach with children. We must keep in mind the different barriers that we may encounter when we initiate palliative care. Education and further research is still needed to improve care and to achieve better results.

Key words: pediatrics; palliative care; terminal illness; pediatric patient.

Introduction

Currently the epidemiological transition has led to changes in structure and approaches of health models globally. This change has focused mainly on the fact that acute infectious diseases no longer cause high mortality rates, but result in chronic degenerative diseases. This change is due to the many health programs and initiatives that have been developing in the world. But combined with this wellness, diseases have emerged such as cancer and other chronic diseases that lead patients to points where there are significant limitations and uncertainties regarding the development and management of the disease. The main medical objective during the initial stages of any disease is the control or cure of the disease, which involves, in many cases, aggressive treatments. However,

there are situations in which management is no longer useful or the adverse effects outweigh the benefits themselves. In these situations, the goal of treatment changes and the patient and/or physician wish to modify the management.^{1,2} During the development of the disease when the doctor and patient are faced with the painful and inevitable reality of the natural evolution of disease, the time comes when palliative care is needed.

Palliative care in pediatrics

What is palliative care in pediatrics? It is difficult to establish a precise definition of palliative care that includes all children who need it and to provide international standards for its application because each country has different health models, different resources, care models, philosophies, culture, and political and legal standards, etc.³

In 1990, the World Health Organization (WHO) defined palliative care in general terms as "the comprehensive care of patients whose disease is not responsive to curative treatment. The control of pain and other symptoms and of psychological,

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Received for publication: 3-4-10

Accepted for publication: 3-9-10

social and spiritual problems is paramount. The goal of palliative care is to achieve a better quality of life for patients and their families."⁴

This definition reflects the philosophy of palliative care but has a number of problems when applied to the pediatric population. Faced with serious and chronic diseases of children, medical personnel and family members may feel unable to apply this philosophy because they are forced to choose between interventions directed towards treatment and well-being, which are considered mutually exclusive.

It is difficult to decide when a child does not respond to curative treatment, as on many occasions with oncological diseases in which relapses may occur. A rigid distinction is made between curative and palliative measures, which are reserved for when the final stage of life is near, and the prognosis for death is close.³ In 1993, Children's Hospice International (CHI) established norms for palliative care that point out that admission to a pediatrics palliative care unit (PCU) does not impede the child and the family to continue with elective treatment or support therapy, accepting at the same time both curative and palliative treatment, avoiding a rigid distinction between both treatments and not considering them to be mutually exclusive.⁵

The American Academy of Pediatrics in the year 2000 defined an integrated model of palliative care. The components of it are offered at the time of diagnosis and continue throughout the course of the disease, whether it be cure or death of the child.⁶ This type of management is based on the Frager model where, in addition to adopting the meaning of palliative care (alleviate without cure), it adopts a larger and more useful model, which means to alleviate and mitigate the physical, social and spiritual symptoms.⁷

In 2002 CHI developed the program "*Inclusive care for the child and family*".⁸ This model offers continuity for the child and family from diagnosis to follow-up until death, if a cure is not achieved.

What is a terminally ill patient?

The Ethics Manual of the American College of Physicians defines terminal illness as an inexorable condition, whether treated or not and where the patient will most likely will die in a period of 3-6 months.

The diagnostic criteria for terminal illness are as follows:¹

- 1) Presence of advanced, progressive and incurable disease
- 2) Lack of reasonable chance of response to specific treatment
- 3) Presence of numerous problems or severe, multiple, multifactorial and changeable symptoms
- 4) Strong emotional impact on the patient, family and treatment team, with the possibility of death
- 5) Prognosis of life that incorporates criteria focusing on patient needs

This diagnosis should be made by at least two physicians, one of whom is responsible for the patient or the attending physician and (the) other(s) unrelated to the patient. To establish the diagnosis of a terminally ill patient we can base it on the *Principle of Therapeutic Proportionality*.¹⁰ This principle ascertains that there is a moral obligation to implement all those measures that have a proportional therapeutic relationship between the means employed and the predictable result. Those measures in which this proportional relationship is not met are considered to be disproportionate and would not be morally binding. It is important to note that the judgment on proportionality of a particular medical intervention should be done by reference to the overall benefit of therapy, not only in relation to possible inducible physiological effects. Thus, for example, it is not sufficient that a particular treatment is helpful in terms of reducing

or increasing blood pressure or blood potassium if these effects do not represent an actual benefit to the overall progress of the patient.¹¹ Support in these cases is, in itself, a likely futile therapeutic measure. At present there is no clear definition of futility with a general consensus, but a treatment can be considered futile if it cannot serve a specific purpose (this decision may be subjective).¹²⁻¹⁴ This may cause unnecessary pain and suffering. A futile procedure does not necessarily achieve the goal of restoring the patient to an acceptable quality of life.

Epidemiology of death in children

Death has always been something that humans tend to ignore due to fear. When death occurs in children it is more striking because parents have expectations to see them grow and be healthy along with "the hope of humanity."

Although scientific and technological advances have resulted in a decrease in infant mortality, Mexico ranked 111 (of 217 countries) with 19.63 deaths/1,000 newborns in 2006.¹⁵ The causes of death vary at each stage of pediatric life, in addition to the epidemiological transition that has existed in the country.

Between 1971 and 2000, the leading causes of death in children < 1 year of age were as follows:¹⁶

- 1) Certain conditions originating during the neonatal period
- 2) Congenital anomalies
- 3) Pneumonia and influenza

In children aged 1-4 years the causes were as follows:

- 1) Accidents
- 2) Congenital anomalies
- 3) Pneumonia and influenza

In children aged 5-14 years they were as follows:

- 1) Accidents
- 2) Malignant tumors
- 3) Congenital anomalies

However, the IMSS reports cancer as the second leading cause of death (2007 report) in children between 1 and 14 years of age.¹⁷ According to the IMSS, there are 4,000-4,500 new cases annually in Mexico, of which the IMSS cares for ~2,300 patients per year. At the Children's Hospital "Federico Gomez" in Mexico City, between the years 2006 and 2007, 28,336 patients were treated for the first time, of which 7,447 were referred for specialty consultations. Of this total, 6.5% (489 patients) corresponded to first-time cancer patients. Of these patients, those who are diagnosed with leukemia for the first time will have an average of 10 readmissions to the hospital during the first year due to complications associated with their underlying disease and/or treatment. Patients with solid tumors are admitted on an average of four times a year.

Five to 10% of all cancer patients will become terminal patients and are strong candidates for palliative care. Although this is a potential disease for palliative care, other diseases may also fall under this category such as accidents, birth defects, certain conditions originating perinatally, infectious and parasitic diseases of the circulatory system, diseases of the blood and hematopoietic organs, digestive system diseases, diseases of the musculoskeletal system and connective tissue, and nervous system disorders.¹⁸

Causes that may predispose terminal illness

There are many childhood diseases that may result as being a terminal illness such as:^{19,20}

- 1) Congenital anomalies
- 2) Chromosomal abnormalities
- 3) Neurological lesions
- 4) Liver diseases
- 5) Immune diseases
- 6) Cancer
- 7) Acquired immunodeficiency syndrome (AIDS)
- 8) Rabies
- 9) Short bowel
- 10) Complex chronic conditions

In Mexico we have no reliable statistics to guide us on the number of children who die each year with these pathologies.

The practice of pediatric palliative care

The term "palliative care" is difficult to understand for the physician. In many cases it is understood as their practice in caring for the dying patient. Personnel should be trained to administer patient care, whether healthcare worker or family member, in the development of specific aspects of palliative care, stressing that palliative care is part of caring for a child, the bearer of an acute or chronic illness. Palliative care involves relief from physical, psychological, social, emotional and spiritual suffering.

Palliative care is divided into *specific and nonspecific*.^{9,21,22}

Specific care uses surgery, radiotherapy, chemotherapy, blood transfusions, etc.

Nonspecific care is analgesia, nutrition, hydration, constipation, management of pressure sores, vomiting, hygiene, insomnia, anxiety, treatment of depression, counseling, and social and spiritual support.

Goals of a palliative care program in pediatrics^{3,9,19}

1. Admission of a pediatric patient to a program of palliative care will be done when there is little probability of the child reaching adulthood.
2. Does not have as an objective to shorten life but to control the physical and emotional symptoms in a dignified manner for the patient and family.
3. Is not used to precipitate or to postpone death
4. Initiates support from the time of diagnosis
5. Seeks a better quality of life for the child and family
6. Provides comfort
7. Provides comprehensive, individual and continuous care, accepting the values, wishes and beliefs of the child as part of a whole
8. Promotes values and humanism
9. Promotes the truth
10. Multidisciplinary team management, 24 h/day, 365 days a year, and any member of the team will be trained to provide support for the needs of the child and family
11. Provides tools to parents, guardians and other family members for communication and interaction with the child about their illness, condition, expectations, etc.
12. Provide continuous emotional and spiritual support
13. Complement the curative treatment when applicable
14. Affirm life and see death as a natural process
15. Does not end with the death of the patient; grief support should take place as long as necessary to all those affected by the death of the child

16. Define goals and limits for therapy for a child with a chronic illness
17. Make appropriate end-of-life decisions

Palliative care and relief of physical suffering

Symptom management is a vital part of palliative care. Pain is the most important symptom due to its frequency and impact on the patient and family, but other symptoms such as dyspnea, nausea, vomiting, salivation, and convulsions should not be ignored. It is recognized that treatment is delayed in some cases.²³ Pain is a prominent symptom, not just for cancer patients but also in other diseases such as cystic fibrosis, AIDS and neurodegenerative diseases.²⁴

Late diagnosis, physician's lack of experience, underestimation of pain, fear of addiction and toxicity of opioids are all factors that play an important role in the physician's decision to not make a diagnosis and give timely and adequate pain treatment.¹⁹

It is essential for pain management to know what is causing the pain because treatment will depend on establishing a correct diagnosis. Opioids are of great value for moderate or severe pain. Neuropathic pain is caused by direct irritation of nerves. Drugs such as amitriptyline, nortriptyline and gabapentin have shown effectiveness in controlling this type of pain.

Another type of pain is somatic pain, which affects the bone and soft tissue. It is treated with nonsteroidal anti-inflammatory drugs. Visceral pain, which may be caused by distention or obstruction, requires treatment with glucocorticoids or octreotide.

In addition to pain management by specialists for this symptom, there are alternative therapies such as biofeedback (which corresponds to behavioral therapy for the relief of human suffering with empirical, scientific and theoretical foundations, which is an essential feature in its application). Hypnosis, massage and acupuncture all play a

vital role but always go hand-in-hand with other therapies. Agitation can be treated with lorazepam or haloperidol, diphenhydramine for itching, nausea and vomiting with prochlorperazine or ondansetron, diazepam for seizures, and secretions with hyosciamine.^{25,26}

Psychosocial, emotional and spiritual needs

In recent years there has been an awareness of the emotional and spiritual needs required by all patients, their families and support staff. In the case of terminally ill patients, these aspects must become an indispensable part of treatment.¹ The chronically ill patient generally is socially isolated, and this causes suffering because of the inherent symptoms of the illness as uncertainty about their future and the fear of death.¹

The physician needs the support of parents, guardians and other staff responsible for patient care because it is important to maintain the routines established before the disease was detected.

The first step in treating depression and anxiety is its recognition through communication with the child, for which knowledge of normal and spiritual development of all children is required. To work with these patients, evaluation on the basis of drawings, games, toy animals, stories, music and creation of rituals is necessary, which will allow the child to express fears and anxieties and thus manage their emotional alterations.²⁰

The understanding of death, chronologically speaking, may start as early as age 3, but universally occurs between 5 and 6 years of age; however, the identification of individual mortality is usually apparent between 8 and 9 years of age. It is important to discuss previous experiences with death such as seeing other patients in the process of dying, traumatic events in life, relationship with some type of drug-dependence and suicidal thoughts. Changes in care plans must be made according to patient's previous experience, and

referral of the family and child for counseling and/or psychiatric support is indispensable, as necessary.^{27,28}

There is a misconception between what is spirituality and what is religion. The spiritual aspect includes the essence of humans, hope, self-esteem, the meaning of life, goals, hopes and interaction with others; in a word, spirituality is the *"human dignity."*

However, it is important to know the meaning God has on their lives, especially in regard to what happens after death, their thoughts and fears regarding death. We must not forget that children are spiritual. The spiritual connection with their environment will give these patients a higher meaning in their lives.

Concept of death and spirituality in children

In recent decades the importance of spiritual support for patients and their environment has been recognized. Children in the end stage of their disease have very deep spiritual beliefs, which emerge even when they question us about life and the death. The search for meaning and understanding of the dying process are directly related to age, family and/or emotional relationship one has with the patient, therefore, it is essential to know the different needs and perceptions according to the place that one occupies in the process.

Children usually are more willing and open than their parents to discuss death and its hidden mysteries. The events that occur during the dying process are defined as "spiritual transformation through the gradual dissolution of the ego and what surrounds the individual taking him to his most basic level." In children there is a natural ability to perform this transition because they are much more aware of their elemental condition and, in addition, they have a less-developed ego.

During the dying process, the health team involved becomes "a student of life" and the children are transformed into the "teachers,"

placing before our eyes the richness that the human experience provides. Children provide us with teachings of humility that demonstrate the beauty of the essence of life itself. We can see the concept of death and spirituality according to age in Table 1.

Interdisciplinary team for management of palliative care patients

For the management of end-stage patients, a multi- and interdisciplinary team who are able to assume responsibility for the complex needs of these children and the problems they face within and outside the institution, all with a view to alleviating their suffering and achieve an improvement in quality of life standards, is required. This team should have high technology and proximity to the problem. The team must have unity, humanity, cooperation among members, and a shared competence, i.e., a single goal, and great patience and high tolerance for frustration. Among the points to include is the possibility that the team may be in a position to provide support at all times to the different needs of both the child and family. There must be comprehensive preparation to meet these needs.

It is important, as part of the program, to have pediatricians, nurses, pain specialists, thanatologists, nutritionists, social workers, psychologists, psychiatrists, physiotherapists, and occupational therapists, as well as spiritual guidance as part of the team. Similarly, it should be taken into account that these patients may be managed both on an in-hospital and outpatient basis.

In the hospital environment it is possible to maintain a close vigil, but it is important that the patient be stable at all times and can return to their own environment, continuing with the program as an outpatient.

After discharge from the hospital, the child is not excluded from the program, but that support should extend to the geographical area where

the child is located, and support health networks should be established in different locations. On the other hand, there is a small percentage of patients who are at home but who are not able to be mobilized and in these cases "home visits" should be considered, taking into account the possibilities of

the institution to provide this support or considering the existing agencies that provide this support, as a subcontractor to follow-up these children. This "extended support" system must have adequate preparation and ongoing communication with the center for each case.

Table 1. Development of the concepts of death and spirituality of the child

Age (years)	Characteristics	Concept of death	Spiritual development	Interventions
0-2	Sensory motor relationship with the environment. Limitation in verbal communication, reaches for stationary objects, could perceive "that something is wrong"	Perceived as separation or abandonment, protest and de-separation due to the modification in care, no cognitive understanding of death	Faith is reflected in the trust and hope in others, need sense of self-esteem and love.	Provides constant greater physical comfort to the child, family and transitional objects (favorite toys)
2-6	Magical thinking, egocentrism, thought is irreversible, symbolic play develops abilities in verbal communication	Believes that death is temporary and reversible like sleep. Does not personalize death, thinks that death can be caused by a thought (wishes that become reality), thinks that death could be a punishment	Magical faith and imagery, participation in rituals, need for values is important	Minimizes separation of the parents, corrects perceptions of disease as punishment. Evaluate sense of guilt and modify if it is present, use precise terms (to die and death)
6-11	Concrete thoughts	Develops adult concepts of death, understands although with difficulty that death could be personal or of a loved person, interested in the psychology and details of death, gradual perception of the irreversibility and end, concrete reasoning for cause and effect of the relationships	Preoccupation of faith for good and evil, may accept interpretations external to the truth, connects ritual and personal identity	Evaluate the fear of being abandoned, honesty, provide concrete details if asked. Support the child's efforts to reach control and dominance, maintain contact with parents. Allow the child to participate in all decision making.
12-18	Generalized thinking; reality becomes an objective. Capacity for reflection, body image, self-esteem	Death is irreversible, universal, and inevitable. All people including the child could die, although in the future. Abstract and philosophical reasoning. Explores a nonphysical explanation of death	Begins to accept internal interpretation of the truth. Evolution of the relationship with God or a supreme being. Searches for the meaning of purpose and values in life.	Reshape the child's self-esteem and allow the child to express the deepest feelings. Allow privacy and promote contact with parents. Allow the child to participate in decision making

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Elements to consider for adequate palliative treatment

Regarding the types of management, both specific as well as nonspecific, we find that minimal management requires the following:

- Feeding—can be provided naturally or via a nasogastric tube. In general, parenteral nutrition is not part of palliative treatment except for patients with short bowel, etc.
- Hydration—administration of fluids and electrolytes provides comfort for patients, more easily removes both bronchial and oropharyngeal secretions, and prevents thirst and dry mucous membranes. This type of hydration should preferably be enteral.
- Oxygenation—in its various forms but preferably without mechanical ventilation support. In the event that the patient is under ventilatory support at the time of the determination of patient's terminal status or palliative treatment, extubation is not part of management, but assistance with minimum parameters should be considered.
- Comfort—the bed should have adequate support, and clothing should be adequate. Comfort extends to visiting relatives, with an attempt at maintaining an area of physical privacy in which to visit with the child in a comfortable environment.
- Hygiene—clean or bathe, change clothes often, both personal and bedding.
- Position changes—should be frequent in order to modify support points that reduce circulation and that may predispose decubitus ulcers.⁹

There is an extension of palliative care such as transfusions, chemotherapy, etc., which may be part of palliative care treatment, but these should be evaluated individually.

Barriers to management

The main barrier that we face in the management of patients who need palliative care lies in the fact that the death of a child is not something that is considered natural. Technology has helped to prolong life in patients with diseases that formerly caused an early death. We currently have the means to prolong life, but the goal is not only to prolong life but to provide support for an adequate quality of life.

For some physicians, death may be regarded as the final end of a disease and, for others, however, for fighting an excessive fight, may result in aggressive treatment. Patients with complex underlying conditions may require specialized support for their palliative care such as special nutrition, ventilatory support, transfusions, etc. that may confuse care providers by making them feel that they must manage life support in an intensive way. The difference between active and palliative management should be well understood to avoid inappropriate management.

The implementation of pediatric palliative care is a challenge because the child is in a growth and development phase and, if this is added to the significant impact of the disease in addition to the diagnosis of patients with terminal illness, the situation generated becomes more complex. Therefore, the management team must continually adapt to these changing needs with a child: their growth, development and different thoughts, ideas, dreams, their perception of life, death, etc. There is also an inseparable family component, which is represented by the parents or guardians, and children are legally and emotionally dependent on them. The aim of palliative care is for prevention and/or alleviation of physical, emotional, social and spiritual suffering, both for the child and family, although not all suffering can be prevented or relieved.

There is no magic formula for the treatment of these patients. The management approach should always be individualized and focused on

the welfare of children and their families. Palliative care in pediatrics does not preclude curative treatment, such as cancer patients in relapse, who sometimes require both.

Pediatric palliative care must be carefully planned after assessing current needs, but these programs must be flexible, dynamic and continuous. For the development of pediatric palliative care and an adequate understanding of such treatments, it is necessary to develop improvement programs, continuing education, support teams, and research relating to technology, medicine, humanities, holistic approaches, etc. This should also involve the health care team to optimize both inpatient and outpatient management through support networks.

In some situations, it is difficult for the attending physician to classify a patient as being terminally

ill, which may prevent the subjective supplementation of palliative care. We propose that these cases should be evaluated by the bioethics committee of each hospital. In this way, recommendations would be made to assist the physician in decision-making without in any way making this opinion the norm. Medicine must be necessarily humanist, and multidisciplinary palliative care must be a unit that works with the patient and family 24 h/day. It is desirable that all members involved in this process have the same philosophy and specific goals for the well-being and tranquility of the child and family.

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