

Nursing Care of a Cerebral Palsy Child Patient According to Orem's Self-Care Deficit Nursing Theory: A Case Report

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Abstract

Disability is a negative situation that prevents and limits the activities that are expected to be performed by an individual according to his/her age, gender, and social and cultural status as a result of a damage or disability. There are many diseases within the scope of disability and mental disability. One of these diseases is cerebral palsy. Cerebral palsy is a non-progressive disorder of tone, force, motion, and posture due to damage to the central nervous system, which is determined in infancy. Orem's self-care deficiency theory is a general theory that includes 3 separate nursing theories: self-care theory, self-care failure theory, and nursing systems theory. In addition, according to this theory, people have 3 types of self-care needs: universal self-care needs, self-care needs in deviations from health, and developmental self-care needs. In this case report, data of an 8-year-old boy patient who was followed up in the pediatric intensive care unit with a diagnosis of cerebral palsy were collected according to Orem's self-care deficiency theory, and the attempts and applications were made according to this theory. The purpose of this case report is to apply nursing care to a child with cerebral palsy according to Orem's self-care deficiency theory.

Keywords: Nursing care, Orem, self-care, theory

Introduction

Disability is a negative situation that hinders and limits the activities that an individual is expected to do according to his/her age, gender, and social and cultural status as a result of a damage or disability.¹⁻³ Intellectual disability, on the other hand, is a serious disorder that leaves individuals permanently dysfunctional and requires constant observation, control, care, treatment, and rehabilitation.^{4,5} There are many diseases within the scope of disability and mental disability. Cerebral palsy,⁶ which is one of these diseases, is a non-progressive disorder of tone, strength, movement, and posture due to damage to the central nervous system due to any prenatal, perinatal, and postnatal reason.^{7,8} In addition to motor disorders, intellectual, attention, memory, sensory, autonomic, and other neurological disorders can also be seen in patients.⁷ Due to changes in the muscle tone of a child with cerebral palsy, the hips and lower extremities are pulled inward like scissors when the child lies in the prone/supine position. Problems in muscle tone also negatively affect chewing, swallowing, and speaking skills. It may be difficult for them to get enough energy due to difficulty in sucking and swallowing. Dental problems are also common because they cannot adequately take care of themselves.⁸

Orem's self-care deficit nursing theory is one of the theories frequently used in nursing practice. Orem advocates the view that there is a mutual interaction between humans and the environment. In his theory, Orem stated that man is a unique unitary entity and cannot be thought of separately from his environment, and he defined the definitions of the concepts of human, health, environment, and nursing, which constitute the paradigm of nursing, in line with this view.^{9,10} Orem's theory includes 3 different nursing theories: self-care theory, self-care deficit theory, and nursing systems theory. According to Orem, people have 3 types of self-care needs: universal self-care needs, self-care needs in health deviations, and developmental self-care needs.¹⁰ Theory also includes six core concepts: self-care, therapeutic self-care needs, self-care power, self-care deficiency, nursing power, and nursing system. It also explains the basic situational factors, which are an environmental concept.¹¹ Orem's self-care deficit nursing theory has also been used in the planning of nursing care for many diseases.¹²⁻¹⁶

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Children with special care needs need a caregiver (mother, father, nurse, etc.) to provide them with self-care. Depending on their level of dependency, their self-care can be done with the help of the caregiver or can be completely done by the caregiver. In children with cerebral palsy, if the extent of the disease has progressed, self-care is completely provided by the caregiver. With Orem's nursing theory of lack of self-care, the needs of a pediatric patient with cerebral palsy were determined and nursing care and practices were performed. Nursing diagnoses were determined from the diagnoses in the North American Nursing Diagnosis Association (NANDA) classification system. The aim of this case report is to apply the nursing care of a child with cerebral palsy according to Orem's self-care theory.

An explanation was given to the mother before the data of the patient hospitalized in the pediatric intensive care unit (PICU) were collected. It was stated that the information would be used if they gave their consent. Written and verbal consent was obtained from the mother. The data were collected in January 2020 according to Orem's theory of lack of self-care, and nursing interventions were made according to this theory.

Patient's History and Medical Diagnosis

Medical diagnosis Cerebral palsy, pneumonia

The child patient, who was admitted to the hospital due to wheezing, respiratory distress, changes in skin color, and fever, was hospitalized in the PICU with the diagnosis of pneumonia. It is mentioned in the patient's history that he was hospitalized frequently with the diagnosis of pneumonia, and he has tracheostomy and gastrostomy. In addition, there are 2 large-scale pressure sores in the sacral region. Vital signs of the patient during hospitalization included fever of 38.8°C, heart rate of 130 beats/min, SpO₂ of 87, respiratory rate of 30/min, and blood pressure of 110/68 mmHg. Laboratory findings included C-reactive protein level of 42 mg/L, white blood cell count of 17.2, potassium level of 3 mmol/L, and sodium level of 130 mmol/L.

A. Key Situational Factors

An 8-year-old boy was followed up with the diagnosis of cerebral palsy. When the developmental status of the child patient was examined, his height was 112 cm (percentile <3%) and weight was 20 kg (3%-10% percentile). Considering the socio-cultural characteristics of the patient, the family lives in the district, the mother and father were primary school graduates, and they had 2 more children aged 11 and 17. The parents stated that their income situation was not good. health system; there is health insurance, family system; nuclear family, way of life; child sick bedridden, environmental factors; the patient has family around him. Considering the adequacy and accessibility of resources, he was financially and morally dependent on his family.

B. Self-Care

It is the action performed by oneself in order to determine maintain his/her life, health, and well-being. Factors that determine an individual's self-care ability include age, developmental status, life experience, sociocultural status, health, and available resources.¹¹ As the child patient was bedridden since his neonatal period, he could not meet his own self-care. The self-care and dependent care agent for him was his mother. Due to their illnesses, they frequently applied to health institutions and were hospitalized frequently.

C. Self-Care Power

According to Orem, an individual must have sufficient self-care power to be able to fulfill their self-care needs. Self-care power is defined as the ability to initiate and implement health activities to maintain life, health, and well-being.¹⁷ Since he was a patient with special needs, he could not continue his life normally. Cognitive and perceptual status was insufficient. The primary caregiver was his mother. His self-care was always met by his mother.

D. Therapeutic Self-Care Needs

All self-care actions required by the individual to prevent disease and improve health are defined as treatment therapeutic self-care needs. These needs change throughout the life of the individual. Orem grouped self-care needs under 3 subgroups: universal self-care needs, developmental self-care needs, and health deviation self-care needs.^{17,18}

1. Universal Self-Care Needs

This includes air, water, nutrition, elimination, activity, rest, solitude, social interaction, protection from dangers, development of man, and his functions that apply to all people.^{11,17,18}

Air

Tracheostomy was available. He had breathing difficulties due to existing pneumonia. Respiratory rate was around 30/min. There were secretions. There was an oxygen cylinder at home, and oxygen was given when the oxygen saturation value (SpO₂) dropped below 90.

Water and Nutrition

Percutaneous endoscopic gastrostomy (PEG) was available. The mother formula-fed him and gave him daily fluids.

Excretion and Defecation

He urinated 6-7 times a day, passed stool once, and diapers were used.

Activity and Rest

Since the patient was immobile, he could not do any activity. His mother did not change his positions regularly in the bed. He could not speak and slept on an average of 8-9 hours per day.

Loneliness and Social Interaction

Communication with the patient could not be established.

Protection from Hazards

There was a risk of trauma.

2. Developmental Self-Care Needs

Developmental self-care needs include the needs that emerge during the growth and development stages of the individual.¹⁰ The child patient was 8 years old. His height and body weight were 112 cm (percentile <3%) and 20 kg (3%-10% percentile), respectively. The child patient was included in the school period child group. Social, psychological, and cognitive needs could not be met due to situations such as being immobile, unable to speak, and having inadequate cognitive and perceptual status.

3. Health Deviation Self-Care Needs

When the individual cannot meet his or her universal care needs, self-care needs arise in health deviations. According to Orem, self-care in

Table 1. Nursing Care Plan of a Child with Cerebral Palsy According to Orem's Self-Care Deficit Nursing Theory			
Nursing Diagnosis	Aim	Nursing Interventions	Evaluation
Diagnosis 1: Due to pneumonia "Ineffectiveness in airway pattern"	O ₂ saturation in normal values (PaO ₂ =95%-100%)	<ul style="list-style-type: none"> Mouth, nose, and tracheostomy were aspirated in the presence of secretion and when the saturation value fell below 90. A position change was made every 2 hours. Lung sounds, respiratory rate and depth, respiratory sounds, saturation values, and skin color were monitored. Postural drainage was performed 4-6 times a day on average. Oxygen was given. The oxygen values given were followed and recorded. 	<ul style="list-style-type: none"> Oxygen saturation values were around 97%-98% as long as the patient was followed up. There was equal aeration in lung sounds. The respiratory rate counted was around 28-30/min.
Diagnosis 2: Due to a chronic illness "Nutrition less than body requirements"	Ensuring nutritional needs	<ul style="list-style-type: none"> The daily amount of food given by the mother was evaluated. The calorie requirement was calculated. The daily amount of food was increased. Fluid intake and output were followed up. Urine and stool output were observed. 	<ul style="list-style-type: none"> Height percentile was <3%, weight percentile was 3%-10%. During his stay in the hospital, he was fed according to his calorie needs.
Diagnosis 3: Due to disease "Fluid volume imbalance"	Ensuring fluid volume balance	<ul style="list-style-type: none"> Electrolyte levels were followed. Electrolyte suitable for electrolyte deficit (infusion in potassium chloride mai) and mai (izomix 1/3) were started. The amount of liquid was monitored. Payment was followed up. Taken in and taken out was followed up. 	<ul style="list-style-type: none"> Electrolyte deficiency was eliminated (potassium: 4.2 mmol/L) Fluid volume balance was achieved during hospitalization. There was no payment.
Diagnosis 4: Due to disease-related skin ulcerations, PEG, and tracheostomy "Tissue integrity deterioration"	To reduce and heal the existing pressure sore	<ul style="list-style-type: none"> The pressure sore was checked every day. Dressings were made in accordance with the conditions of asepsis. The child's position was changed every 2 hours, preventing the ulcerated area from being under pressure. The sheets were changed every day and every time they got dirty, and care was taken to ensure that they were tight and wrinkle-free. Frequent change of diaper was made. Redness was monitored in the sacral region. Tracheostomy and PEG area were frequently observed. Redness at the PEG site was followed. The areas where invasive intervention was applied were observed for signs of infection. 	<ul style="list-style-type: none"> Healing of the pressure wound was observed. Positioning and durations were also explained to the mother. The redness at the PEG site has decreased.
Diagnosis 5: Depends on oral intake "Risk of changes in the oral mucous membrane"	Ensuring the integrity of the oral membrane	<ul style="list-style-type: none"> The oral mucous membrane was evaluated every day. Oral care was given on a daily basis. 	<ul style="list-style-type: none"> Oral mucous membrane integrity continued.
Diagnosis 6: Pneumonia, PEG site redness, invasive procedures, tracheostomy, pressure ulcer related "Infection"	Elimination of infection	<ul style="list-style-type: none"> Hand hygiene to be performed before and after each procedure was provided to the patient. Dressing care, treatment, and intervention were applied at regular intervals in accordance with the principles of asepsis. Signs and symptoms of infection were observed. Every day IV set, enteral feeding set was changed every day. Her medical treatment was carried out regularly according to the principles of asepsis. Infection parameters were followed. Cleanliness of medical devices was checked. 	<ul style="list-style-type: none"> The patient received antibiotic treatment for the diagnosis of pneumonia. A decrease in CRP value was achieved (11 mg/L).

(Continued)

Table 1. Nursing Care Plan of a Child with Cerebral Palsy According to Orem's Self-Care Deficit Nursing Theory (Continued)			
Nursing Diagnosis	Aim	Nursing Interventions	Evaluation
Diagnosis 7: Depending on being an individual with special needs and limb dysfunction "Self-care deficit"	Performing self-care of the child patient	<ul style="list-style-type: none"> The mother's care behaviors were observed because the child was dependent on the mother for his self-care. The missing care and applications were explained and continued until discharge. The inside of the bed was wiped and bathed. Oral care was performed. All requirements such as oxygen, water, nutrition, excretion, hygiene, and activity were met. 	<ul style="list-style-type: none"> The child's self-care was provided by the nurse during the hospitalization.
Diagnosis 8: Depends on being immobile "Trauma risk"	Protection of the child patient from trauma	<ul style="list-style-type: none"> The bed level was lowered during the position change, and the borders were removed. Pat attention was paid to the position of the patient in invasive procedures such as vascular access, and the bed borders were removed. Secure position change was ensured during bed linen change, at least 2 people took part in the process. 	<ul style="list-style-type: none"> There was no trauma.
Diagnosis 9: Depending on being an individual with special needs and intensive care environment "Disruption in the continuation of family processes"	Family members maintaining a supportive function	<ul style="list-style-type: none"> The mother was allowed to express her feelings and ask questions. The family was informed frequently. The family was told about cerebral palsy, societies, associations, etc., and they were directed. Support was provided to parents of children with cerebral palsy to communicate. 	<ul style="list-style-type: none"> There was deterioration in family processes.

CRP, C-reactive protein; PEG, percutaneous endoscopic gastrostomy.

health deviations is defined as "needed only in the event of ailments, disability, or illness." The need for nursing occurs when individuals cannot meet their health-related needs. These requirements arise because of three reasons: situations that cause the physical structure of the individual to deteriorate, the physical functions of the individual to deteriorate, and the behavior to change.¹⁷

Because the child patient is in the patient group with special needs was bedridden, had pressure sores, tracheostomy, and PEG, he was hospitalized frequently. A nurse was needed in every care and practice. It was determined that oral care was not done regularly. There was redness at the PEG site and 2 large sacral pressure sores.

E. Self-Care Deficit

It is the disruption of the balance between an individual's self-care power and self-care needs. It forms the basis of Orem's general nursing theory. This theory determines when and why a nurse is needed.^{17,18} When a child suffers from a lack of self-care, his/her needs are met by family members or nurses. The power of the dependent care agent. Self-care power can be affected due to the mother's insufficient level of knowledge about all diseases and the fact that it is a chronic process, and this situation may prevent the development of self-care.

F. Nursing Power

It is all of the attempts made by the nurse to determine the self-care needs of individuals with self-care deficiency to provide and manage self-care.¹⁷ According to Orem¹⁹, nursing power consists of 3 systems: the social system, the interpersonal system, and the professional-technological system.¹⁹

Social System

The self-care agent and dependent care agent for a child is his or her mother. No one helped with the care of the child at home except the mother who was always with the child. The mother's social system was inadequate.

Interpersonal system

The mother tried to cope with these diseases for years, but there were deficiencies in providing care. She trusted the nurse during the hospital process and constantly asked questions. The mother's questioning was supported by the nurses.

Professional-technological system

The mother used an aspirator device and finger type pulse oximeter at home. There was an oxygen cylinder in the house.

G. Nursing System

Nursing practices made by the nurse to meet the specific therapeutic self-care deficiency of the individual or the patient constitute the nursing system. According to Orem, there are 3 types of nursing systems:¹⁹

1. Deficiency, Fully Remedial Nursing System

It is the system in which the nurse performs the therapeutic self-care of the patient, thereby providing support to deal with self-care and protecting the patient. For example, self-care for patients in coma and patients with mental retardation.^{10,17}

2. Deficiency, Partially Compensated Nursing System

This system determines the necessary self-care criteria for the patient. It supports the patient in completing the self-care limits and provides the needed help.^{10,17}

3. Supportive and Educational Nursing System

According to this system, the patient takes care of himself and may sometimes need the support of others. These education, guidance, environment, and support are given to the patient.^{10,17}

Identified Problems

In this case, a nursing system that completely compensates for the deficiency and a supportive and educational nursing system were used. Deficiency, fully remedial nursing system was made by providing the nurse's direct care to the patient. Supportive and educational nursing system was provided by training the mother accordingly.

Nursing diagnoses for the deficient, fully remedial nursing system (Table 1)^{20,21} are as follows:

- Ineffectiveness in airway pattern
- Nutrition less than body requirements
- Fluid volume imbalance
- Tissue integrity deterioration
- Risk of change in oral mucous membrane
- Infection
- Self-care deficit
- Trauma risk
- Disruption in the continuation of family processes

Applications According to the Supportive and Educational Nursing System

- Parents were allowed to ask questions.
- The knowledge level of the parents according to the medical diagnosis was evaluated. It was seen that they did not have enough information. Parents were informed twice during visiting hours for 30 minutes.
- Parents' knowledge of care and their care were evaluated. It was determined that the caregiver was the mother and in which care the mother lacked knowledge was also determined. It was determined that she did not notice the redness in the PEG area, did not change his position, did not know how to do postural drainage correctly, did not regularly give the daily amount of food in the diet, did not do oral care, and did not provide adequate body hygiene.
- To make up for the deficiencies in the care, care was provided together with the mother. The mother was observed until discharge. The signs and symptoms of infection such as rash, fever, etc. were explained to the mother. It was explained and showed that she had to change his position every 2 hours. Postural drainage was taught. Oral care was done along with the mother. Bed bathing and wiping were shown and done together with the mother. There was a change in the amount of food, and the mother was informed about this. The importance of giving regular and sufficient amount of food was explained.
- Parents were told about communities, associations, etc. related to cerebral palsy. Support was provided in communicating with other parents.

Discussion

Children with cerebral palsy, who are in the group of children with special needs, are dependent on their caregivers (mother, father, health personnel, etc.), either completely or supportively, in terms of their self-care needs. In this case, data collection and determination of nursing interventions based on Orem's theory of self-care deficit have been quite instructive. In our case, it was observed that the person giving care to the child, the mother, had deficiencies in caregiving. In order to complete the deficiencies during the hospitalization process, the mother was supported, the cares were carried out together, and then the mother was observed during the care to determine whether she gave the care correctly. It was determined that the mother did not notice the redness in the PEG area, did not change her position, did not know how to do postural drainage correctly, did not regularly give the amount of daily food in the diet, did not regularly perform oral care, and did not provide adequate body hygiene. It was found that the low educational level of the parents and their poor socioeconomic status lead to a lack of caregiving. Having a child who is completely dependent on them for care is also a difficult and exhausting situation for parents. Especially in these cases, practices according to the supportive and educational nursing system gain importance. These applications were also included in our case.

Conclusion and Suggestions

Children with cerebral palsy have an important place in pediatric nursing. It is necessary to determine how much they are dependent on the caregiver for their self-care and their care needs. In the nursing care of a child with cerebral palsy based on Orem's self-care deficit nursing theory, a completely remedial, supportive, and educational nursing system was used. According to this theory, the patient is fully dependent and does not take an active part in performing activities of daily living. All the needs of the patient are met by the nurse. Supportive and educational nursing system was used for the parents. The pediatric patient, who was hospitalized for 14 days, had an increase in the patient's oxygen saturation values, improvement in electrolyte values, improvement in pressure sores, and regression in the symptoms of infection in the PEG site. Pneumonia treatment was completed successfully, and secondary infection did not develop. It has been observed that the level of knowledge of parents in medical diagnosis and care practices increased. It has been completed in those who are missing from the mother's care practices.

Support systems are needed for caregivers of children who are dependent on caregivers to provide self-care needs. Deficiencies of families in care can usually be detected during the hospitalization process. With home care services, the continuity of these families in providing care can be ensured. In addition, it is possible to help them interact with other parents who have children with the same diagnosis to direct them to associations and to provide social media interaction, which is common today.

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