








Nursing Care of the Individual with Flame Burn According to the Nursing Model Based on Daily Living Activities of Roper, Logan and Tierney

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ABSTRACT

Burn victims consist a wide range of industrial accidents. The trauma arose from industrial burn accidents bring forth disability or even death. Not only the victim but also the family suffer from this situation. It is thought that the Nursing Model, which consists of five items (life time, daily life activities, factors those affecting daily life activities, independency-dependency system, individuality in life), collects data about the individual patient and apply it in a systematic direction with a holistic approach. The aim of this study is how to take care of the patients, those suffered from burn injury as a result of an industrial accident in accordance to the Nursing Model based on the daily life activities of Roper-Logan and Tierney.

INTRODUCTION

Burn is a comprehensive trauma that affects the whole organism.^[1] According to the American Burn Association data, 450,000 people were injured due to burns and 3400 individuals lost their lives in 2012. These deaths; 2850 of them were due to flame burn, 150 of them were inhalation damage, 400 of them were due to electricity, scalding and hot body contact.^[2] Despite the great advances in technology and medicine today, burns are still life threatening problems.^[3,4] According to the Social Security Administration data in Turkey, 359 653 insured individuals who have work accidents in 2017. 1633 of them died.^[5] Burn takes

a large place among the causes of work accidents. Burn trauma caused by work accidents can result in death or disability, negatively affecting the lifestyle of the individual and his family.

Various models have been developed by theorists to ensure systematic and comprehensive collection of data from a healthy/ill individual/family. One of these models is the Roper, Logan and Tierney's Nursing Model based on daily life activities, consisting of five items (life span, activities of living, factors influencing activities of living, independence-dependency continuum, individuality). The model is thought to provide holistic care by collecting data about the individual in a systematic direction.^[6] The aim

of this study is to discuss the care process of the patient who suffered a burn injury as a result of a work accident in according to Roper, Logan and Tierney' Nursing Model based on the daily living activities.

CASE REPORT

A 47 year old male patient was brought to our center by the 112 emergency ambulance. He approached the tube leak with lighter fire at work and as a result of the explosion of the tube, a third degree burn occurred in 47.3% of his body (Head 5%, neck 1%, Front body 3%, Back 4%, Right Gluteal region 1%, Right upper arm 3%, Right forearm 2%, Right hand 2.5%, Left upper arm 1% Left Forearm 2%, Left hand 2%, Right leg 10%, Right foot 1%, Left leg 8%, Left foot 1%).

After his first treatments, he was hospitalized in the Burn Intensive Care Unit. In the first evaluation, the general condition of the individual was confused, the Glaskow Coma Scale was evaluated as 14/15, respiratory distress was present, dehydrated appearance and peripheral pulses were diagnosed filiform. The individual was intubated and connected to the respiratory equipment, laboratory tests were performed and fluid treatment was started by inserting a central venous catheter. Afterwards, an eschatomy was opened and wound care was performed. After the consultation of the burn treatment team and the necessary units (orthopedics, plastic surgery, neurology, cardiology, eye, nutrition, physical therapy, psychiatry, anesthesia), nutrition and movement supports were decided.

According to the individual's life span, he is in adulthood. While he was fully independent in many ways during his adulthood, he became dependent. When we evaluate the daily life activities of the individual, first of all, he was considered to be dependent on respiratory activity by having respiratory distress and connecting to the respiratory device. Due to the presence of impaired consciousness, not being able to move on his own, and having pain, he was considered to be dependent on the activity of providing a safe environment. It is also semi dependent in communication activity with its intubation and the application of sedative drugs. It was evaluated as a semi dependent in nutritional activity and elimination activity due to the lack of oral nutrition, increased body calorie needs, and unconscious weight loss. It was evaluated as a semi dependent in movement activity with its inability to move on its own, having pain, causing dressing limitation. He is also semi dependent on sleep activity due to missing his family during hospitalization, presence in a hospital environment where he is foreign, pain, infection, daily dressing changes. It was determined that the individual had problems and became semi dependent in the activities of personal cleaning and dressing, control of body temperature, working and entertainment, and expressing sexuality.^[6-9] The individual was diagnosed with 40 nursing diagnoses according to daily living activities;

- Maintaining a safe environment; risk of infection, acute

pain, acute confusion, risk of trauma, risk of fluctuation in blood sugar level, risk of falling, shock risk

- Communicating; Impaired verbal communication, anxiety, spiritual distress, impaired body image, social isolation
- Breathing; impaired breathing pattern, impaired gas exchange, risk of ineffective airway cleaning, aspiration, risk of ineffective peripheral tissue perfusion
- Eating and drinking; fluid volume deficiency, unbalanced nutrition: Less than body requirement, risk of fluid volume imbalance, risk of electrolyte imbalance, risk of ineffective gastrointestinal perfusion, nausea
- Eliminating; risk of constipation
- Personal cleansing and dressing; lack of self-care in bathing, lack of self care in toilet activities, lack of self care in dressing, lack of self care in nutrition, lack of information, risk of pressure injury, risk of impaired oral mucous membrane, impaired skin integrity
- Controlling body temperature; risk of perioperative hypothermia, hyperthermia
- Mobilizing; impaired in-bed mobility, impaired physical mobility, Activity intolerance
- Working and playing; interrupted family processes, impaired comfort, risk of difficulty in caregiver role
- Sleeping; impaired sleep pattern

Nursing interventions were planned and implemented according to the principle of individuality in life (Table 1).

DISCUSSION

He was hospitalized in our intensive care unit for 49 days, in the service for 21 days, 70 days in total. Burn wounds were infected and they were cared for. During hospitalization, a total of 30 debridement dressings, 3 autografts and 1 allograft surgery were performed.

Tissue integrity was provided before the discharge of the individual, and their training on nutrition, movement, wound care, and the use of pressure clothing were given. In daily living activities that the individual is dependent to, the levels of dependent were reduced and he was discharged in a position to perform his self care.

As a result, the individualized nursing care planned in according to the NANDA-I, NIC and NOC taxonomic structures and the Roper, Logan, Tierney's Daily Living Activities, in accordance with the stages of the nursing process, increased the level of independence in all living activities by providing holistic care.

Informed Consent

Retrospective study.

Peer-review

Externally peer-reviewed.

Authorship Contributions

Concept: A.K., D.O., G.F., M.Ş.; Design: A.K., D.O., G.F.,

Table 1. Part of nursing care process

Nursing Assessment and Nursing Diagnosis	Planning		Implementantation	Evaluation
	Patient Outcomes	Nursing Inrventions		
<p>Impaired Spontaneous Ventilation, Related to intense secretion and laryngeal edema as evidenced by decrease in lung sounds, pulse 128 / min., breathing is irregular, superficial and difficult, accompanying respiratory and intercostal/supraclavicular muscles.</p>	<p>There will be effective and equal signs of ventilation in the patient's lung sounds at the end of the day. The patient will have an unassisted breathing pattern until discharge.</p>	<p>The speed, rhythm, depth and breathing effort of breathing are monitored. The expansion of the lungs evenly is checked. The diaphragm is followed in terms of paradoxical movement. Effective coughing of the patient is followed. Aspiration requirement of the airways is defined. Oxygen saturation and blood gas values are monitored. When tolerated, it is gradually separated from mechanical ventilation and oxygen support.</p>	<p>Interventions were implemented</p>	<p>The patient was followed up for a total of 97 hours of mechanical ventilation during his hospitalization. He was taken to the appropriate physical therapy program 1 day after his hospitalization, and 7 days later, he was mobilized 2 times a day for 2 hours. He did not need oxygen supplements 25 days before his discharge.</p>
<p>Impaired skin integrity Related to 3rd degree burn injury as a result of flame, as evidenced by Wound in 47.3% of his body.</p>	<p>Tissue integrity will be maintained until the patient is discharged</p>	<p>The integrity of the texture is evaluated. Appropriate asepsis is provided during dressing and other procedures The granulated wound bed is protected from trauma. Extremities are observed in terms of color, temperature, swelling, pulses, tissue, edema and ulceration. Skin and mucous membranes are observed for redness, excessive temperature and discharge. Pressure and friction sources are monitored. The next day of his admission, he is taken to the appropriate exercise program by the FTR. Changes in skin or mucous membranes are recorded. The family member / caregiver is properly trained about the symptoms of skin damage.</p>	<p>Interventions were implemented.</p>	<p>Upon arrival in our unit, Braden Scale score was evaluated as 9 points (high risk). After 20 days, it was evaluated as 18 points (no risk). Pressure injury did not develop. At the end of appropriate dressing and care, 100% tissue integrity was achieved 20 days after the 4th grafting surgery.</p>
<p>Liquid Volume Deficiency Related to loss of the volume from the burn wound by evaporation, increased capillary permeability, inability to take oral as evidenced by increased urine concentration, CVP 1mm/Hg2O measurement, Besides measuring 5005cc urine daily and 2020cc urine it extracts; invisible losses, open wounds, stress and fluid losses are high. Occasional hourly urine output to be 20 cc.</p>	<p>The fluid that the patient receives and removes until the end of the day will be balanced and the necessary fluid intake will be provided.</p>	<p>Blood pressure, heart rate, and breathing status are monitored. Fluid requirement in the first 24 hours is calculated according to Parkland Formula (15000cc). Fullness in the neck veins, rustling in the lungs, peripheral edema and increased weight are observed. Daily fluid intake and close are monitored. Weight tracking is done. Blood and electrolyte values are monitored. Mucous membrane, skin turgor and thirst are observed. Fluid intake is changed appropriately when necessary.</p>	<p>Interventions were implemented</p>	<p>Urine density was measured as 1020. CVP value reached 6 mm / H₂O. Balance was achieved between what he took and removed. When he was not taking orally, IV took his fluids from 200 cc / h (RL from 120 cc / h, TPN from 80 cc / h).</p>

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Conflict of Interest

None declared.

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Roper, Logan, Tierney'in Günlük Yaşam Aktivitelerine Dayalı Hemşirelik Modeli Doğrultusunda Alev Yanığı Olan Bireyin Bakımı

Yanma iş kazalarının nedenleri arasında geniş bir yer tutmaktadır. İş kazaları sonucu ortaya çıkan yanık travması ölüm ya da sakatlıkla sonuçlanarak bireyin ve ailesinin yaşam biçimini olumsuz yönde etkileyebilmektedir. Beş öğeden oluşan (Yaşam süresi, günlük yaşam aktiviteleri, günlük yaşam aktivitelerini etkileyen faktörler, bağımsızlık-bağımlılık dizgesi, yaşamda bireysellik) Roper, Logan ve Tierney'in günlük yaşam aktivitelerine dayalı Hemşirelik Modelinin hasta birey hakkında sistematik doğrultuda veri toplayarak bütüncül bakım verilmesini sağladığı düşünülmektedir. Bu çalışmanın amacı, iş kazası sonucu yanık yaralanması oluşan hastanın Roper, Logan ve Tierney'in günlük yaşam aktivitelerine dayalı Hemşirelik Modeli doğrultusunda bakım sürecini ele almaktır.

Anahtar Sözcükler: Hemşirelik bakımı; model; yanık.