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Case Report / Olgu Sunumu

Nursing Care of a Patient with Chronic Kidney Failure in Intensive Care Unit, According to Riehl's Symbolic Interaction Model: A Case Report

Riehl'in Sembolik Etkileşim Modeli'ne Göre Yoğun Bakım Ünitesinde Yatan Kronik Böbrek Yetmezliği Olan Hastanın Hemşirelik Bakımı: Olgu Sunumu

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ABSTRACT

Introduction: Chronic kidney failure is one of the common health problems in the world and in Turkey. Hemodialysis is one of the most widely used renal replacement therapies. Riehl's Symbolic Interaction Model, on the other hand, is based on the interaction between the nurse and the patient. In this case report, nursing care was planned for a patient diagnosed with chronic kidney failure, who was treated in the intensive care unit and on mechanical ventilation support, within the scope of Riehl's Symbolic Interaction Model.
Case report: H.D. is a 66-year-old female patient. The patient, who was on hemodialysis, was brought to the emergency room by ambulance with complaints such as impaired consciousness, extreme weakness, inability to speak, and respiratory distress at home after dialysis. The patient was admitted to the tertiary intensive care unit because of the diagnosis of chronic kidney failure and the need for hemodialysis.
Conclusion: It is thought that the nursing diagnoses determined in line with Riehl's Symbolic Interaction Model and the interventions applied in this direction contribute to the nursing care of the patient who needs hemodialysis and receives mechanical ventilation support.

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ÖZET

Giriş: Kronik böbrek yetmezliği dünyada ve Türkiye'de yaygın ve sık görülen sağlık problemlerinden biridir. Hemodiyaliz tedavisi ise kronik böbrek yetmezliğinde en yaygın olarak kullanılan replasman tedavilerinden biridir. Riehl'in Sembolik Etkileşim Modeli ise hemşire ile hasta arasındaki sembolik etkileşime dayalıdır. Bu olgu sunumunda yoğun bakımda tedavi gören mekanik ventilasyon desteğinde olan kronik böbrek yetmezliği tanılı bir hastanın Riehl'in Sembolik Etkileşim Modeli kapsamında hemşirelik bakımı planlanmıştır.
Olgu Sunumu: H.D. 66 yaşında kadın hastadır. Hemodiyalize giren hasta diyaliz sonrası evde bilinç bozukluğu, halsizlik, konuşamama, solunum sıkıntısı gibi şikayetlerle acile servise getirilmiştir. Krobik Böbrek Yetmezliği tanısı olan hastanın hemodiyaliz ihtiyacı nedeniyle üçüncü basamak yoğun bakım ünitesinde tedavi ve bakım için yatırılmıştır.
Sonuç: Riehl'in Sembolik Etkileşim Modeli doğrultusunda belirlenen hemşirelik tanılarının ve bu doğrultuda uygulanan girişimlerin hemodiyaliz ihtiyacı olan ve mekanik ventilasyon desteği alan hastanın hemşirelik bakımına katkı sağladığı düşünülmektedir.

1. Introduction

1.1. Chronic Kidney Failure (CKF)

Chronic Kidney Failure (CKF) is a common and frequent health problem in the World and our country. Its prevalence and incidence are increasing day by day (1). CKF is the inability of the kidney to perform its functions as a result of the inability to adjust the fluid-electrolyte balance, chronic, and progressive deterioration in metabolic and endocrine systems, which develops due to the decrease in glomerular filtration rate due to many various factors (2). As in our country, the most common causes of Chronic kidney failure in Europe and United States are diabetes mellitus, hypertension, and Glomerulonephritis (1,2). In the 2019 report of the Turkish Nephrology Association, the first three problems in the etiology of end-stage renal disease were reported as 39.04% diabetes mellitus, 24.91% hypertension, and 4.90% glomerulonephritis, respectively (3).

In patients with CKF, serious clinical pictures occur as a result of deterioration of physiological balance due to problems in kidney functions (4). Renal replacement therapies (RRT) such as peritoneal dialysis, hemodialysis, and transplantation may be needed in cases where diet and medical treatment methods are advanced in the treatment of CKF (4,5). Hemodialysis is the most widely used renal replacement therapy (2). According to the data of the Turkish Society of Nephrology in Registry Report 2019, the total number of patients undergoing hemodialysis is 61341 people (3). Although dialysis treatment is not a definitive solution for CKF patients, it prolongs the life expectancy of patients (5).

1.2. Riehl's theory of symbolic interaction

Riehl formed the basis of the Symbolic Interaction Model by being influenced by the concept of "symbolic interactionism" (6). In the concept of symbolic interactionism, there is an interaction in which symbols are effective in interpersonal relations and communication (7). Symbolic interactionism deals with symbols that emerge through interaction and analysis (8). In symbolic interactionism, it is aimed to define a symbolic behavior and to determine the interactions with the environment (9). In symbolic interaction theory, people interpret the meanings attributed to actions before they react. It is the process of interpretation between stimulus and response (10).

Riehl's Symbolic Interaction Model is based on the interaction between nurse and patient. Riehl defined her theory briefly as 'interpreting behaviors' (6). The model is based on the use and interpretation of symbols in the interaction between nurses and patients (11).

In Riehl's model, interacting with the patient requires advanced skills for nurses, as empathy and non-verbal communication must be interpreted very well and nursing diagnoses and interventions must be applied accordingly. Communication should not be handled only verbally. With Riehl's model, nursing diagnoses and interventions can be implemented by using symbols with patients who cannot communicate verbally.

In the model, symbols are analyzed with the FANCAP formulation. The nurse interprets and evaluates the actions, reactions, and thoughts of the patient. These obtained data are symbols for the nurse. Problems are identified based on the main headings and symbols in the FANCAP assessment tool described below. The nursing care process is planned and as a result, nursing care is applied (12).

•Fluids •Aeration •Nutrition •Communication •Activity •Pain

FANCAP data can be obtained physiologically, environmentally, sociocultural, and psychologically. In the model, it was aimed that nurses provide as comprehensive care as possible.

Intensive care units (ICU) are among the places where care and nurse-patient interaction within the nursing profession become much more important. Intensive care patients; Depending on their medical condition and treatment processes, they may experience limitations in meeting their individual needs and communicating with their environment for some reasons (such as intubation)(13). In Riehl's symbolic interaction model, interaction with the patient was made by using symbols. It has been determined that the use of the model created by Riehl in the field of nursing is very limited (14). In our country, there is one study on this subject (15). In this case report, it is aimed to evaluate the patient who was followed up in the intensive care unit and on mechanical ventilation support within the scope of the symbolic interaction model.

1.3. Ethical considerations: For this study, verbal and written informed consent was obtained from the first-degree relatives of the case.

2. Case Report

H.D. is a 66-year-old female patient. She is a primary school graduate, married, and has 5 children. The patient, who was on hemodialysis, was brought to the emergency room by ambulance with complaints such as impaired consciousness, extreme weakness, inability to speak, and respiratory distress at home after dialysis. As a result of the evaluation made in the emergency department, the

patient was admitted to the tertiary intensive care unit because of the diagnosis of CKF and the need for hemodialysis.

H.D. She has been diagnosed with CKF for six years and has been receiving hemodialysis three days a week (Tuesday, Thursday, and Saturday). Other chronic diseases are Hypertension (HT) for 10 years and diabetes mellitus (DM) for eight years. For three years, she has been experiencing visual problems due to hypermetropia. The patient has no known allergies. The patient's daughter helps the patient in daily life activities.

Glasgow Coma Score was determined as 13 when the patient was admitted to the ICU Her height was 155 cm, her weight was 75 kg, her body mass index was 31.22 kg/m^2, her blood pressure was 186/98 mm/Hg, her heart rate is 123 bpm, saturation is 88%, respiratory rate was 30 bpm, fever was 36.6 °C. Nasal oxygen was opened to the patient and medical treatment was started for her blood pressure. Since vascular access could not be established, a central venous catheter was established from the right femoral. The Nephrology department follows the patient in terms of CKF. The patient was consulted by neurology in terms of unconsciousness. The patient, who had high blood pressure on her arrival, was consulted with the cardiology, and medication was arranged.

Table 1. Applied treatments

Treatments	Dose and Method
Pantoprazole	1x40mg (IV)
Furosemide	1x20mg (IV)
Tazobactam sodiumperacillin sodium	3x2.25mg (IV)
Ipratropium bromide and salbutamol	4x0.5mg (Inh)
Budesonide	2x0.5mg+2.25mg (Inh)
Enoxaparin sodium	1x0.4cc (SC)
Ondansetron	2x8mg (IV)
Acetylsalicylic acid	1x100mg (NG)
Amlodipine	2x10mg (NG)
Doxazosin mesylate	1x4mg (NG)
Carvedilol	2x25mg (NG)
Enteral Nutrition	40cc/h (NG)
Norepinephrine bitartrate	Case of need (IV)

IV: Intravenous Inh: Inhaler SC: Subcutaneous Injection NG: Nasogastric Tube

Table 2. Laboratory values

Examinations	1. day	7. day
Urea	84.3 mg/dL(H)	93.71 mg/dL(H)
Creatine	5.1 mg/dL	4 mg/dL
Sodium	135 mEq/L(L)	138 mEq/L(L)
Potassium	5.6 mEq/L	4.7 mEq/L
Calcium	8,1 mg/dL	8.4 mg/dL
Chlorine	95 mEq/L(L)	102 mEq/L(L)
WBC(leukocyte)	14.26 x103(L)	12,30 x103(L)
Hemoglobin	11,6g/dL(L)	11,9g/dL(L)
Hematocrit	33.4%(L)	34.1% (L)
PLT(thrombocyte)	371x103(L)	335x103(L)
CRP	20 mg/dL	12 mg/dL
Blood Gas pH	7,402	7.396
Blood Gas pO_2	76 mmHg	96 mmHg
Blood Gas pCO_2	46 mmHg	36 mmHg
Blood Gas SaO_2	91%	97%
Blood Gas HCO_3	22.3mEq/L	24.8 mEq/L

On physical examination, the patient's skin color was pale. There was a fistula in the left arm, and redness and ecchymoses were present in the right arm as a result of IV catheter interventions. There was pretibial edema. Redness was detected in the sacrum. When she was admitted, she was in confusion. Fall Risk Score was found to be at high risk. Nausea and vomiting were present. Her oral intake was insufficient and she had no appetite. Oral intake was tried in the patient, but because she could not swallow and had nausea and vomiting, a nasogastric tube was inserted in case of aspiration risk. She had respiratory distress on admission and her saturation was 88%. Nasal oxygen was opened to the patient at 2-4lt/min. When the patient had high blood pressure upon arrival, she became hypotensive after dialysis, and inotropic treatment was started. Her treatment was arranged according to her blood pressure. Anuria was present due to CKF. Five days after the patient's hospitalization, as a result of deterioration of blood gas values and respiratory patterns, she was intubated and connected to the mechanical ventilation device. The current treatment of the patient during nursing care is given in Table 1. The important values of the patient's laboratory findings are shown in Table 2.

Table 3. Collection of data in the scope of Riehl's model of symbolic interaction

FANCAP	Symbols	Nursing Diagnoses
Fluids	Pitting edema Absence of urine output due to CKF (Anuria) Inadequate oral intake Liquid restriction Entering hemodialysis Laboratory values in biochemistry	Excess Fluid Volume
	Inadequate oral intake Liquid restriction Entering hemodialysis	Risk For Electrolyte Imbalance
Aeration	Respiratory distress Decreased saturation Normalization of arterial blood gas values Disruption of respiratory patterns Following on mechanical ventilation support	Ineffective Breathing Pattern
Nutrition	Nausea, vomiting Having trouble swallowing Inadequate oral intake Switching to feeding with NG Laboratory values in biochemistry	Imbalanced Nutrition: Less Than Body Requirement
	Having diabetes Entering hemodialysis Inadequate oral intake	Risk for unstable blood glucose level
Communication	Non-verbal body and facial movements Reacting to painful stimuli in invasive procedures Being on mechanical ventilation Inability to speak due to endotracheal tube	Impaired Verbal Communication
Activity	Presence of redness on the sacrum Redness and ecchymosis on the right arm due to IV interventions Edema on the tibia	Impaired Skin Integrity
	Receiving hemodialysis, Administration of heparin in hemodialysis Ordering anticoagulant drugs The patient has a fistula, Central venous chatater	Risk For Bleeding
Pain	Invasive interventions Reacting to painful stimuli in procedures such as suctioning in mechanical ventilation Experiencing pain observed in facial and body movements during care, position change, oral care, and endotracheal tube care	Acute Pain

The physical examination of the patient, who received dialysis on certain days during her hospitalization, was performed. Laboratory values were followed. Nursing diagnoses were determined in line with the findings and interventions were planned (16,17). The evaluation was made within the framework of the FANCAP data collection tool within the scope of Riehl's Symbolic Interaction Model (Table 3.). Nursing diagnoses were determined in accordance with the nursing diagnosis guide of the North American Association of Nursing Diagnoses (NANDA).

2.1. Nursing care

2.1.1. Fluids

Nursing diagnosis 1: Excess fluid volume (Domain 2.: Class 5.)

Interventions: The patient's vital signs, fluid intake, and output were monitored and recorded. Laboratory values and biochemistry values were evaluated. Peripheral edema findings in regions such as neck veins, tibia, ankle, back, and sacrum were evaluated. The edematous region has been upgraded. Fluid restriction was done. Ordered diuretic therapy was performed. Before and after dialysis, the patient's edema, fluid, and electrolyte levels were evaluated and recorded. Skincare done.

Evaluation: There was no increase in edema over the tibia. No increase was observed in the amount of urine.

Nursing diagnosis 2: Risk for electrolyte imbalance (Domain 2.: Class 5.)

Interventions: The patient's vital signs, follow-up, and output were recorded. Laboratory values were evaluated. Edema control was performed in terms of peripheral edema. Fluid restriction was done. Edema and fluid electrolyte values were monitored before and after dialysis. Antidiuretic treatment ordered according to the physician's request was applied.

Evaluation: There was no increase in edema over the tibia. It was observed that there was a decrease in the electrolyte values of the patient on the 7th day. (Sodium: 138 mmol/L, Potassium: 4.7 mmol/dl, Calcium: 8.4 mmol/L, Chlorine: 102 mmol/L

2.1.2. Aeration

Nursing diagnosis 3: Ineffective breathing pattern (Domain 4.: Class 4.)

Interventions: The patient's respiratory rate and rhythm were evaluated and recorded. Tidal volume, Peep, Respiratory Frequency in patient's vital signs, and mechanical ventilation. FiO_2 parameters were closely monitored. Endotracheal tube and oral suctioning were performed to ensure airway patency. A position was given every 2 hours. Blood gas values were checked. Saturation value was observed and recorded. Ordered bronchodilator drugs were administered. Endotracheal tube care and oral care were performed.

Evaluation: Recorded at SpO_2:99-100 levels. In blood gas monitoring pH:7.396, pO_2:96 mmHg, pCO_2:36 mmHg, SaO2:97%, HCO_3:24.8 mEq/L

2.1.3. Nutrition

Nursing diagnosis 4: Imbalanced nutrition: Less than body requirement (Domain 2.: Class 1.)

Interventions: A nasogastric tube (NG) was inserted into the patient who could not take oral, and enteral feeding was provided. In the presence of nausea, the antiemetic drug in the order was administered. Ordered enteral solutions were given. Gastric residual volume was checked at 6-hour intervals. What he received was followed up and recorded. Liquid electrolyte values were monitored. Daily nasogastric tube (NG) care was performed. Oral care was given to the patient. The oral mucous membrane was evaluated every day.

Evaluation: Enteral nutrition was provided according to the daily calorie requirement of the patient.

Nursing diagnosis 5: Risk for unstable blood glucose level (Domain 2.: Class 4.)

Interventions: The blood sugar level of the patient was regularly followed up and recorded. He was followed closely in terms of hyperglycemia and hypoglycemia. The diabetic formula was used in enteral feeding. Abnormal cases were treated at the request of a physician.

Evaluation: The patient's blood sugar follow-ups were recorded at 120-200 mg/dL levels.

2.1.4. Communication

Nursing diagnosis 5: Impaired verbal communication (Domain 5.: Class 5.)

Interventions: The patient's non-verbal behavior was observed. The facial and body signs of the patient were evaluated in all invasive noninvasive procedures. The patient was informed about all procedures performed. Family relatives were allowed to meet with the patient during visiting hours.

Evaluation: It was observed that the patient was compliant with the procedures performed.

2.1.5. Activity

Nursing diagnosis 6: Impaired skin integrity (Domain 11.: Class 2.)

Interventions: The presence of skin dryness, rash, ecchymosis, and edema was evaluated daily. The amount of fluid ingested and expelled was tracked and recorded. Pressure zones were assessed daily. Body care is done. The body is hydrated. Bed linens were kept clean, dry, and wrinkle-free. A position was given every 2 hours.

Evaluation: No increase in edema on the tibia was observed. Redness over the sacrum did not progress.

Nursing diagnosis 7: Risk for bleeding (Domain 11.: Class 2.)

Interventions: Hemoglobin, hematocrit, INR, and PT/aPTT values of the patient were checked against the risk of bleeding due to heparin administration in hemodialysis and anticoagulant in treatment. The fistula site and catheters were observed for bleeding. Anticoagulants in her treatment were applied according to the physician's request.

Evaluation: No bleeding was observed in the patient.

2.1.6. Pain

Nursing diagnosis 8: Acute pain (Domain 12.: Class 1.)

Interventions: The symptoms, signs, and reactions of the patient for pain during invasive procedures, endotracheal tube suctioning, oral and body care, and position changes were observed and evaluated. Pain was assessed using a non-verbal pain scale and appropriate analgesics were administered when necessary. The patient was given a suitable position. Brief and concise information was given to the patient about the procedures performed.

Evaluation: It was observed that she responded less to the interventions.

3. Discussion

In this case report, within the framework of Riehl's Symbolic Interaction Model, a patient with a diagnosis of Chronic Renal Failure, who was followed up in the intensive care unit, and who needed dialysis and was followed up on mechanical ventilation support, was evaluated within the scope of FANCAP and nursing care was planned. When the literature is examined, it has been determined that the number of studies on the use of Riehl's Symbolic Interaction Model is limited (14,15,16).

In this case, a patient with a diagnosis of chronic renal failure in the intensive care unit and undergoing dialysis was evaluated with symbols. Within the scope of Fluids, the patient's follow-up, vital signs, biochemistry values in the laboratory, edema, urine output, and oral intake insufficiency were evaluated with symbols. There was no change in the amount of urine of the patient who was diagnosed with excess fluid volume and risk of fluid electrolyte imbalance. There was no increase in edema level above the pretibia. No abnormal values were observed in biochemistry values. Fluid restriction due to excess fluid volume in hemodialysis patients, Ensuring and maintaining compliance is one of the most important goals of hemodialysis treatment (17,18).

Since the patient was admitted to the intensive care unit, respiratory patterns, respiratory rate, saturation value, and arterial blood gas values were evaluated within the scope of aeration symbols. Five days after hospitalization, mechanical ventilation support was provided with an endotracheal tube. Continuing the treatment and care of the patient in a mechanical ventilator without complications is possible by giving successful and effective nursing care (19).

In the context of nutrition, swallowing difficulty and insufficient oral intake were considered symbols. Enteral nutrition support was provided with a nasogastric tube to the patient whose oral intake was insufficient. Nursing interventions were applied by considering the patient's inability to take oral intake, having diabetes and entering dialysis as a symbol, and diagnosing the risk of fluctuation in blood sugar. Adequate nutritional intake in dialysis patients is also important for adequate dialysis (20). The patient was given an enteral product containing moderate levels of protein and reduced electrolytes (potassium, phosphorus), specific to hemodialysis patients, as a nutritional product. Nutritional therapy in chronic renal failure aims to slow the progression of the disease, prevent metabolic problems that may occur, and reduce uremic toxins (21).

Symbols such as the patient's body and facial movements did not respond to intrusive attempts, whether he wanted to speak or not due to the endotracheal tube were evaluated within the scope of communication. All communication efforts should be taken into account by examining the behaviors and attitudes of intubated patients for communication purposes (22).

In this case, the patient's being on mechanical ventilation and the equipment connected to the patient, edema, redness in the sacrum, redness in the arm due to IV interventions, and ecchymosis were considered symbols. After the nursing interventions, the patient's ecchymosis and redness improved. In a review examining the most determined nursing diagnoses in hemodialysis patients were “Excessive Fluid Volume”, “Impaired Mobility” and “Affected Skin Integrity” (23). Bleeding Risk, which is among the most determined diagnoses in hemodialysis patients, depends on the use of anticoagulants during hemodialysis (24). In this case, the patient's hemodialysis, anticoagulants, fistula, and central venous catheter were taken as symbols. In a study, it was shown that the risk of bleeding is one of the most common nursing diagnoses in providing and maintaining a safe environment (25).

Within the scope of pain, the patient's body and facial expressions were evaluated. The patient's response to painful stimuli as a result of care, position change, and invasive interventions were considered symbols. Pain is one of the most important health problems experienced by patients in intensive care units (26).

The patient, who was admitted to the intensive care unit with the diagnosis of CKF and was intubated five days after hospitalization, was taken to the T-Tube on the 3rd day after intubation, and

extubation planning was made. As a result, it is thought that the nursing diagnoses determined in line with Riehl's Symbolic Interaction Model and the interventions applied in this direction contribute to the nursing care of the patient with CKF, who needs hemodialysis, and who is under mechanical ventilation support. It is recommended to evaluate the effect on nursing care by using this model with different cases.

3.1. Limitations

Nursing diagnoses and interventions in this case report are specific to the patient. Many diagnoses can be given to the patient, and nursing care is planned and evaluated by giving priority diagnoses within the scope of the FANCAP framework. Nursing diagnoses were given in the order within the scope of the model.

4. Conclusion

In conclusion; Riehl's symbolic interaction model was conducted with patients diagnosed with post-traumatic stress disorder and COVID-19, and it was concluded that the use of this model in the field of nursing is very low in the literature. In this model, the patient's needs are recognized and nursing care is provided by using symbols within the framework of FANCAP. The application of nursing theories and models in patient care increases the quality of care. It can be said that this model can be applied in the field of nursing. It is recommended to conduct studies with different patients within the scope of this model.

Conflict of Interest: There is no conflict of interest in this study.

Financial Support: No financial support was received in this study.

Ethics Committee Approval: Ethics committee approval is not required for this study. For this study, verbal and written informed consent was obtained from the first degree relatives of the case.

Authorship Contribution:

MK: Research design, literatüre review, data collection, manuscript writing and final check.

NO: Supervision and consultation, critical review, final checks.

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