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CASE REPORT

NURSING CARE OF A PATIENT WITH DIABETIC KIDNEY DISEASE – A NURSING PROCESS USING THE INTERNATIONAL CLASSIFICATION FOR NURSING PRACTICE ICNP® DURING THE COVID-19 PANDEMIC

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ABSTRACT

According to the World Health Organization, diabetes is a major cause of blindness, kidney failure, heart attacks, strokes, and lower limb amputations. The nursing process is a proposed plan of nursing care that encompasses a person’s biological, psychological, and social state. In 1989 the International Council for Nurses created the International Classification for Nursing Practice (ICNP®). The aim of this study is to present the process of nursing a patient with chronic diabetic kidney disease using ICNP® terminology during the COVID-19 pandemic. The study used the method of an individual case. The technique used included an interview, an observation, and an analysis of the patient’s medical records. Based on the case description, 12 sample diagnoses were created using standardized international terminology from the ICNP® dictionary. The most important health problems were presented. The patient was given appropriate nursing care. Health education was carried out.

Key words: diabetic kidney disease, nursing process, COVID-19, International Classification for Nursing Practice.

INTRODUCTION

According to the World Health Organization (WHO), the number of people with diabetes has increased from 108 million in 1980 to 422 million in 2014 [1]. The prevalence of diabetes is rising faster in low- and middle-income countries [2]. Diabetes is a major cause of blindness, kidney failure, heart attacks, strokes, and lower limb amputations [1].

The most common microvascular complication of diabetes is diabetic kidney disease (DKD), which is the leading cause of end-stage renal disease worldwide [3-5]. Diabetic nephropathy develops in about 30% of patients with type 1 diabetes and in about 40% of patients with type 2 diabetes [6, 7].

Clinically, diabetic kidney disease or diabetic nephropathy is defined by the presence of impaired renal function or elevated urinary albumin excretion, or both [8]. Metabolic changes result in glomerular hypertrophy, glomerular atherosclerosis, and inflammation and fibrosis of the interstitial tubules. DKD progresses to glomerular hyperfiltration, progressive albuminuria, a decrease in glomerular filtration rate (GFR), and eventually end-stage renal disease (ESRD) as a late complication of diabetes [6].

The nursing process is a proposed plan of nursing care that encompasses a person’s biological, psychological, and social state. It serves to take purposeful, planned actions that contribute to maintaining or improving the patient’s health and allows the evaluation of the obtained results [9, 10].

To improve the care provided to patients worldwide, in 1989 the International Council for Nurses (ICN) created the International Classification for Nursing Practice (ICNP®), which is an international tool...
used to create a nursing process with structured nursing diagnoses, interventions, and results [11, 12].

In the era of the COVID-19 pandemic, well-structured nursing is particularly important. The ICN lists 12 main priorities in the face of COVID-19 disease, such as ensuring access to personal protective equipment, the need to train nursing staff in line with the latest medical knowledge, supporting new models of care with an important role of social support for nurses, and developing a comprehensive, coordinated health strategy [13].

The aim of this study is to present the process of nursing a patient with chronic diabetic kidney disease using ICNP® terminology during the COVID-19 pandemic.

**MATERIAL AND METHODS**

The study used the method of an individual case. The technique used included an interview, an observation, and an analysis of the patient's medical records. The author’s interview questionnaire, hospital discharges, a self-monitoring diary, a height gauge, a scale, a glucometer, a blood pressure monitor, and a stethoscope were used as research tools.

ICNP® terminology was used to represent the nursing process. The study was conducted in August 2021. Written consent was obtained from the patient for the study.

**CASE STUDY**

The study patient had end-stage renal failure in the course of diabetic nephropathy. The patient was diagnosed with type 1 diabetes mellitus and had a history of hypertension. At the time of the study, the patient was 36 years old, with height 170 cm, weight 49.5 kg, and body mass index (BMI) 17.13 kg/m².

The patient was on intensive insulin therapy, was receiving NovoRapid 3 times a day, 4 to 6 units depending on blood glucose levels, and Lantus 10 units in the evening. The patient’s standing recommendation was oral pharmacotherapy, Amlozep 10 mg, Bicosard 7.5 mg, Controloc 2 times a day 20 mg, Furosemide 40 mg in the morning, Ca carbonicum 3 times a day 1 g, and Acidum folicum 5 mg. In addition, 3 times a week, on days when the patient had a haemodialysis procedure, she received Binocrit in a dose of 2000 units by intravenous injection.

In 2015, due to deteriorating health and the development of end-stage renal failure, the patient was qualified for renal replacement therapy.

The patient was inconsolable about the rapid progression of the disease, the need for haemodialysis treatments, and the necessity to comply with a dietary and fluid regimen. The patient would come overhydrated to undergo dialysis. After the procedures were completed, the patient experienced general malaise, headaches, and weakness.

Three blood pressure measurements were taken in the patient during each haemodialysis session. The blood pressure parameters remained within the range of 158/95 mmHg – 130/80 mmHg, with a mean value of 146/89 mmHg.

Incidents of hypoglycaemia (59 mg%, 61 mg%) and hyperglycaemia (543 mg%, 426 mg%, 326 mg%, 329 mg%, 443 mg%, 315 mg%) were observed during the study. The patient admitted to not sticking to specific meal times and dietary recommendations, and she reported a weakened appetite and reluctance to eat certain recommended foods.

During the interview, gaps in knowledge regarding appropriate health management and medication intake were observed, and information regarding fluid and dietary regimes also needed to be systematised and improved. Thus, therapeutic education on the disease and a dietary, fluid, and medication regimen was conducted.

During the interview, the patient reported anxiety about the possibility of contracting the SARS-CoV-2 virus. She stated that she avoided large groups of people and tried not to travel on public transportation to reduce the risk of contracting the disease.

The patient was asked to report alarming symptoms that could indicate SARS-CoV-2 virus infection.

Telephone checks were conducted at the dialysis station regarding the patient’s well-being and any symptoms indicative of infection. Before entering the station, the patient’s body temperature was measured, and she made a written statement that she had no worrisome symptoms and had not been in contact with people with confirmed SARS-CoV-2 infection. The patient considered the preventive measures to be appropriate and likely to prevent the spread of infection among dialysis patients.

During the examination, the patient’s non-compliance with the recommendations regarding the use of a surgical mask was noted. The patient was instructed several times by the nursing staff on the need to use personal protective equipment. In addition, training in hygienic hand washing was provided. The patient required ongoing education about the need to perform hygienic activities and the obligation to comply with epidemiological recommendations (Table 1).

**DISCUSSION**

People with chronic kidney disease, regardless of the cause, are at risk of poor quality of life as a result of both progressive disease and treatment conditions. Inability to perform occupational activities, limitations in the ability to perform physical activities, changes in appearance, as well as an unstable
<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>[10027566]</th>
<th>Interventions</th>
<th>DC/Outcome</th>
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</thead>
<tbody>
<tr>
<td>Hypoglycaemia</td>
<td>10027566</td>
<td>Assessing Knowledge of Medication Regime [10039039]; Assessing Self Care of Skin [10030747]; Monitoring Blood Glucose [10032034]; Measuring Blood Glucose [10041212]; Administering Medication [10025444]/Administering Insulin [10030417]; Demonstrating Medication Administration [10024354]; Demonstrating Subcutaneous Injection Technique [10021695]</td>
<td>Blood Glucose Within Normal Limits [10033685] [13]</td>
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<td>Electrolyte Imbalance</td>
<td>1003541</td>
<td>Electrolyte Therapy [10039324]; Collaborating In Electrolyte Therapy [10030930]; Monitoring Physiological Status [10012183]</td>
<td>Improved Electrolyte Balance [10033518] [13]</td>
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<tr>
<td>Altered Blood Pressure</td>
<td>10022954</td>
<td>Assessing Knowledge of Disease [10030639]; Managing Medication [10011641]; Administering Medication [10025444]; Medication Handling [10040708]; Monitoring Blood Pressure [10032052]; Measuring Blood Pressure [10031996]; Managing Dehydration [10043821]; Monitoring Fluid Balanc</td>
<td>Blood Pressure Within Normal Limits [10027647] [13]</td>
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<tr>
<td>Impaired Kidney Function</td>
<td>10023169</td>
<td>Assessing Knowledge of Treatment Regime [10036481]; Assessing Knowledge Of Disease [10030639]; Managing Haemodialysis [10046291]; Implementing Haemodialysis Regime [10042361]; Teaching About Haemodialysis [10045235]; Assessing Fluid Balance [10037988]; Maintaining Intravenous Access [10036577]; Managing Medication [10011641]; Medication Handling [10040708]; Managing Device [10031776]</td>
<td>Effective Response to Therapy [10036423] [13]</td>
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<tr>
<td>Peripheral Oedema</td>
<td>10027482</td>
<td>Assessing Knowledge of Treatment Regime [10036481]; Assessing Self Care Of Skin [10030747 ]; Assessing Oedema [10045177]; Managing Oedema [10036793]; Monitoring Weight [10032121]; Monitoring Fluid Intake [10035303]; Monitoring Fluid Output [10035319]; Teaching About Oedema [10045183]; Assessing Fluid Balance [10037881]; Skin Assessment [10041126]; Skin Care [10032757]; Maintaining Skin Integrity [10035293]</td>
<td>No Peripheral Oedema [10029020] [13]</td>
</tr>
<tr>
<td>Lack of Appetite</td>
<td>10033399</td>
<td>Assessing Eating or Drinking Behaviour [10002747]; Providing Food [10041161]; Collaborating With Nutritionist [10040435]; Referring To Community Meals Service [10046483]; Supporting Positive Body Image [10044513]; Providing Emotional Support [10027051]; Managing Nausea [10043673]; Monitoring Food Intake [10036614]; Monitoring Nutrition [10036614]; Assessing Appetite [10038901]; Monitoring Weight [10032121]; Assessing Attitude Toward Nutritional Status [10002694]; Managing Withdrawal Symptom</td>
<td>Positive Appetite [10040333] [13]</td>
</tr>
<tr>
<td>Fatigue</td>
<td>10000695</td>
<td>Assessing Fatigue [10026086]; Encouraging Rest [10041415]; Managing Fatigue [10046289]</td>
<td>Reduced Fatigue [10029390] [13]</td>
</tr>
<tr>
<td>Non-Adherence to Dietary Regime</td>
<td>10022117</td>
<td>Assessing Knowledge [10033882]; Assessing Adherence to Diet [10044481]; Teaching About Nutrition [10024618]; Managing Dietary Regime [10023861]; Collaborating on Dietary Regime [10022117]; Advancing Dietary Regime [10036447]; Collaborating with Nutritionist [10040435]; Evaluating Psychosocial Response To Instruction About Nutrition [10007111]</td>
<td>Adherence To Dietary Regime [10030159] [13]</td>
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feeling of health and well-being can cause addictions and depressive symptoms, resulting in low adherence to medication and proper nutrition. A nurse taking care of a patient with renal disease should treat each patient individually, taking into account the patient’s response to their health, personal and social situation, and the patient’s attitude to the necessity of changing their lifestyle habits. When taking care of a patient with renal failure, preventive measures are needed to prevent negative consequences of the disease in the patient’s life [15].

The International Classification for Nursing Practice (ICNP) provides a simple, standardized tool that can be used to plan and manage nursing care [11, 16, 17]. The ICNP® unifies the nursing communication system worldwide. It makes it possible to present the clinical situation of people under nursing care and to construct the nursing process from a holistic perspective [11, 16, 18, 19].

With the help ICNP® terminology, it is possible to create a proper nursing process, enabling the patient to receive comprehensive care [18].

Based on the case description, 12 sample diagnoses were created using standardized international terminology from the ICNP® dictionary (Hypoglycaemia; Hyperglycaemia; Electrolyte Imbalance; Altered Blood Pressure; Impaired Kidney Function + Haemodialysis; Peripheral Oedema; Lack of Appetite; Fatigue; Non-Adherence to Dietary Regime; Anxiety; Risk for Infection + Central Line; Risk for Disease + Airway Route). Vocabulary from the axes of Client, Location, Diagnosis/Focus, Interventions, and Outcome was used to represent the nursing process [14, 19].

Nursing diagnoses are related to, among other things, inadequate knowledge of patients about the disease, non-adherence to treatment, poor self-management, and impaired ability to participate in care planning. An important role of the nurse in the nursing process is educational activities in health promotion and prevention of complications [20].

In the face of the global health threat of chronic disease, the provision of specific and state-of-the-art information is a fundamental aid to the coping process. Because of the nursing team’s close contact with patients, its role in education is essential [21].

In the era of COVID-19 infection, health education should alert patients to preventive measures and worrisome symptoms. Nurses, using the ICNP® taxonomy, can easily identify and name problems occurring in a patient during COVID-19 infection, such as “Fever”, “Cough”, and “Dyspnoea”, which are the main triad of symptoms in COVID-19 infection [22]. A study by Thoroddsen et al. of COVID-19 patients admitted to the National University Hospital between 28 February and 30 June, 2020 shows a very high percentage of equivalents of diagnoses and interventions in icnp terminology, respectively, SNOMED CT (85.4%; 100%), then by ICNP 2019 version (79.2%; 85%), and least by the ICNP 2021 reference set (70.8; 83.3%) [23].

**SUMMARY**

The use of ICNP® terminology made it possible to present a structured nursing process for a patient with diabetic kidney disease. The most important health problems were presented. The patient was given appropriate nursing care. Health education was carried out. As a result of the interventions, the patient was successfully motivated to self-monitoring and further treatment, and an improvement in vital parameters was achieved.
Disclosure
The authors declare no conflict of interest.

References