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**MODEL OF NURSING CARE FOR A PATIENT WITH
HIP OSTEOARTHRITIS AFTER ALLOPLASTIC
ACCORDING TO THE INTERNATIONAL
CLASSIFICATION OF NURSING PRACTICE (ICNP)**

**Model opieki pielęgniarskiej nad pacjentką ze zwyrodnieniem stawu biodrowego
po zabiegu alloplastyki według Międzynarodowej Klasyfikacji Praktyki
Pielęgniarskiej (ICNP)**

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A - Koncepcja i projekt badania, B - Gromadzenie i/lub zestawianie danych, C - Analiza i interpretacja danych, D - Napisanie artykułu, E - Krytyczne zrecenzowanie artykułu, F - Zatwierdzenie ostatecznej wersji artykułu

Abstract (in Polish):

Cel pracy

Celem pracy jest przedstawienie diagnoz, interwencji, wyników i wniosków u pacjentki ze zwyrodnieniem stawu biodrowego po alloplastyce z wrodzonym skojarzonym niedoborem czynnika V i VIII, według ICNP.

Materiał i metody

Praca ma charakter kazuistyczny, gdzie wykorzystano techniki badawcze: obserwacja, wywiad, analiza dokumentacji, pomiary parametrów życiowych. Użyto narzędzia badawcze: historia choroby, karta

indywidualnej opieki pielęgniarskiej i zleceń lekarskich, karta gorączkowa, karta przetaczania krwi i jej składników, karta obserwacyjna, karta oceny nasilenia bólu, wyniki badań.

Wyniki

Diagnozy i plan opieki są adekwatne do stanu pacjentki. Głównymi problemami były: infekcja rany, ryzyko krwotoku, ból. Przeprowadzono edukację w zakresie pielęgnacji rany oraz samoopieki. Terapia podciśnieniowa (ang. negative pressure wound therapy, (NPWT) zastosowana u pacjentki po zabiegu alloplastyki to skuteczne narzędzie w leczeniu ran trudno gojących się przyczyniła się do skutecznego wygojenia się rany.

Zastosowanie podciśnienia pozwoliło oczyścić łożysko rany z nadmiaru wysięku i drobnoustrojów, a jednocześnie zapewniło optymalne warunki do regeneracji tkanek. Ponadto terapia NPWT poprawiła mikrokrążenie i stymulowała tworzenie nowych naczyń włosowatych.

Wnioski

Zastosowany model opieki według Międzynarodowej Klasyfikacji Pielęgniarskiej okazał się skuteczny w opiece nad pacjentką wymagającą opieki specjalistycznej. Zrealizowano wszystkie zaplanowane działania i udało się zapewnić holistyczną opiekę.

Artykuł stanowi istotny wkład w wykorzystanie przez pielęgniarki klasyfikacji ICNP, której znaczenie w poprawie jakości opieki pielęgniarskiej stale rośnie.

Abstract (in English):

Aim

The aim of this study is to present the diagnoses and interventions in a patient with hip osteoarthritis after alloplastic with congenital combined factor V and VIII deficiency, according to ICNP.

Material and methods

The paper is case-study in nature, where the research techniques used were: observation, interview, analysis of records, measurement of vital signs. The research tools used were: medical history, individual nursing care and medical orders sheet, fever sheet, blood and blood transfusion sheet, observation sheet, pain assessment sheet, test results.

Results

Diagnoses and care plan are adequate for the patient's condition. The main problems were wound infection, risk of hemorrhage, pain. Education on wound care and self-care was provided.

Negative pressure wound therapy (NPWT) applied to the patient after alloplastic is an effective tool in the treatment of wounds that are difficult to heal and has contributed to successful wound healing.

The use of negative pressure allowed the wound bed to be cleansed of excess exudate and microorganisms, while providing optimal conditions for tissue regeneration. In addition, NPWT therapy improved microcirculation and stimulated the formation of new capillaries.

Conclusions

The ICNP model of care used proved to be effective in the care of a patient requiring specialized care. All planned activities were implemented and holistic care was successfully provided.

The article is an important contribution to nurses' use of the ICNP classification, whose importance in improving the quality of nursing care continues to grow.

Keywords (in Polish): alloplastyka, ICNP®, zwyrodnienie stawów biodrowych.

Keywords (in English): hip osteoarthritis, ICNP, alloplastic.

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Short title

Model opieki pielęgniarskiej po alloplastyce stawu wg. ICNP

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Introduction

Alloplastic is a procedure that involves the prosthesis of a joint affected by osteoarthritis. Its aim is to restore physiological movement in the joint without causing pain. This type of surgery has a high success rate and the life of the prosthesis is estimated to be around 30 years. The risk of complications from the procedure is low, which is why alloplastic is a common procedure that provides relief for patients with advanced osteoarthritis in whom other treatments have failed and it is not possible to restore physiological mobility in the joint. This type of solution is used in people over 65 years of age; below this age, this procedure, is performed in individual patients with advanced, multi-joint lesions that significantly impede mobility (e.g., patients with hemophilia) [1,2,3,4].

ICNP is one of the most common linguistic tools along with NANDA. In addition to these, other classifications such as Nursing Interventions Classification (NIC), Clinical Care Classification (CCC) or Nursing Outcomes' Classification (NOC) have been developed. They aim to define diagnoses, describe and systematize interventions and other nursing terms to improve the care provided by nurses [5].

During the refinements of the International Classification of Nursing Practice, it was introduced into the electronic patient chart, which has resulted in the extraction of terms that much better describe the patient's nursing problems, nursing interventions and care outcomes, thus allowing the creation of a catalogue in which there is a set of ready-made phrases that can be assigned to the patient. This ensures that they are translated into multiple languages and structured - they are understood worldwide, thus minimizing the risk of error during international treatment. [5].

The aim of this case study is to present and analyze the diagnoses and nursing interventions in a patient with hip osteoarthritis after alloplastic according to the International Classification of Nursing Practice - ICNP.

The reason for the interest in the case report presented here is to show the care of an orthopedic patient after alloplastic with congenital combined factor V and VIII deficiency and the use of the model according to ICNP, which has been shown to be effective in the care of a patient requiring specialized care, as well as the realization of all planned actions for the patient and the provision of holistic care.

This article is an important contribution to nurses' use of the ICNP classification, whose importance in improving the quality of nursing care continues to grow.

Negative pressure wound therapy (NPWT) applied to a patient after alloplastic is an effective tool in the treatment of difficult-to-heal wounds of varying etiologies.

The use of negative pressure allowed the wound bed to be cleansed of excess exudate and microorganisms, while providing optimal conditions for tissue regeneration. In addition, NPWT therapy improved microcirculation and stimulated the formation of new capillaries. With these properties, it effectively accelerated wound healing.

Case study

The patient, 73, has been treated for osteoarthritis and congenital combined factor V and factor VIII deficiency for many years, and also has hypertension and hypothyroidism. She underwent a right hip alloplastic in May 2012 and a left hip alloplastic in December of the same year due to hip degeneration and contractures. The patient was admitted in January 2022 to the Department of Trauma, Orthopedic and Rehabilitation Surgery at the Malopolska Orthopedic and Rehabilitation Hospital in Kraków for revision surgery of the left hip joint prosthesis due to damage to the endoprosthesis during a fall. During treatment and rehabilitation, the patient developed a wound infection. A wound swab was taken, which confirmed the presence of *Klebsiella pneumoniae* bacteria. Unfortunately, after ineffective pharmacological treatment, a reoperation of the left hip joint was required, and then followed by negative pressure wound therapy (NPWT) for wound treatment.

Subsequently, during rehabilitation, the patient fell and an X-ray showed a dislocation of the left hip prosthesis and a total left hip revision surgery was performed on 14.04.22 involving removal of the prosthesis and implantation of a spacer filler.

Prior to surgery, the anesthetist inserted a central venipuncture into the patient's vein. After surgery, the patient was transferred to the intensive care unit, where she returned to the orthopedic ward after 2 days.

The patient had a Foley catheter inserted and was placed on a bedside regime. The patient was transfused with a total of 13 units of RCc. and 16 units of FFP during her hospitalization. In addition, analgesic therapy is administered: Paracetamol 1g i.v. every 6h, Oxyduo 10mg+5mg p.o. 1-0-1. Currently, according to the NRS scale, the patient's pain score is 5 (on a 10-grade scale).

List of tests performed and their results:

- Wound swab: culture positive, *klebsiella pneumoniae*
- Morphology: Erythrocytes - decreased, Hemoglobin - low, Hematocrit - decreased, MCV - decreased, ESR - increased, Sodium and Potassium - decreased
- CRP increased
- X-ray of the hip joint in AP + lateral recumbent position: dislocation of the left hip prosthesis.

During hospitalization, treatment included:

- transfusion of RCc. 13 units and FFP 16 units,
- Polprazole 20mg p.o. 1-0-0,
- Lacto DR. p.o 1-0-0,

- Magne-B6 48mg + 5mg p.o. 1-1-0,
- Exacyl 1g i.v. 1-1-1,
- Cylonamine 12.5% 0.25g/2ml i.v. 1-1-1,
- Fanhdi 500j.m. i.v. 1-0-1,
- Soluvit N 1 vial ad hoc,
- Furosemide 20mg i.v. 0-0-1,
- Trifas COR 5mg p.o. 1-0-0,
- Nebilet 5mg p.o. 1-0-0,
- Agen 5mg p.o. 1-0-1,
- Morphini Sulfas 10mg i.v. ad hoc,
- Oxyduo 10mg + 5mg p.o. 1-0-1,
- Paracetamol 1g i.v. every 6h,
- NaCl 0.9% 250ml i.v. 0-0-1,
- Euthyrox 50mg p.o. 1-0-0.
- Calcium Chloratum 10%, Sterofundin 500ml i.v. 1-0-0

Nursing diagnoses, goals, interventions and evaluation of the effectiveness of the interventions used according to the International Classification of Nursing Practice - ICNP:

Nursing diagnosis 1: Infection [10023032] hip joint [10009024].

Client: Patient [10014132].

Target: Infection-free [10028945].

Interventions:

- Monitoring body temperature [10012165].
- Monitoring wound healing [10042936].
- Monitoring physical signs and symptoms of infection [10012203].
- Surgical wound care using negative pressure wound therapy (NPWT) [10032863].
- Using aseptic technique [10041784].
- Administration of antibiotic [10030383].
- Monitoring response to treatment [10032109].
- Evaluation of wound healing [10007218].
- Evaluation of response to medication [10007182].
- Teaching about wound care [10034961].
- Evaluation of psychosocial response to wound instruction [10007124].

Evaluation: negative: infection [10023032].

Nursing diagnosis 2: Risk of hemorrhage [10017268].

Client: Patient [10014132].

Goal: No bleeding [10028806].

Interventions:

- Cardiac status monitoring [10034285].
- Blood pressure monitoring [10032052].
- Measuring heart rate [10036826].
- Medication administration [10025444].
- Monitoring blood oxygen saturation with a pulse oximeter [10032047].

- Monitoring of response to treatment - transfusion of blood cells and FFP [10032109].
- Monitoring tissue perfusion [10035335].
- Evaluation of drug response [10007182].
- Collection of venous blood sample [10044633].
- Evaluation of cardiac status [10036738].

Evaluation: positive: no bleeding, balanced blood count values [10028806].

Nursing diagnosis 3: Pain [10023130].

Client: Patient [10014132].

Target: No pain [10029012].

Interventions:

- Assessing pain [10026119].
- Measuring heart rate [10036826].
- Monitoring pain [10038929].
- Interacting with patient and physiotherapist during exercise [10035873].
- Interaction with physician [10023565].
- Interacting in the implementation of patient-controlled pain management [10004561].
- Administering pain medication [10023084].
- Monitoring risk of negative response to nurse-led pain management [10039896].
- Teaching the family about pain management [10038337].

Evaluation: positive: pain control [10025831], reduced pain [10027917], knowledge of pain management [10033750].

Nursing diagnosis 4: Altered blood pressure [10022954].

Client: Patient [10014132].

Target: Blood pressure within normal range [10027647].

Interventions:

- Cardiac status monitoring [10034285].
- Blood pressure monitoring [10032052].
- Measuring heart rate [10036826].
- Coordinating care plan [10031027].
- Administering medication [10025444].
- Evaluation of response to medication [10007182].

Evaluation: positive: blood pressure within normal limits [10027647].

Nursing diagnosis 5: Self-care deficit [10023410].

Client: Patient [10014132].

Aim: Positive ability to perform self-care [10025311].

Interventions:

- Assessing self-care [10021844].
- Assessing degree of independence [10002723].
- Assisting with self-care [10035763].
- Assisting in walking with a device [10036520].
- Providing continuity of care [10006966].
- Teaching about self-care [10045014].

- Promoting self-care [10026347].
- Evaluation: negative: lack of self-care [10029451].

Nursing diagnosis 6: Risk of pressure sores [10027337].

Client: patient [10014132].

Target: no pressure sores [10029065].

Interventions:

- Assessing the risk of decubitus ulcers [10030710].
- Assessing risk of impaired nutritional status [10040921].
- Assessment of independence [10002723].
- Skin care [10032757].
- Promoting self-care [10026347].
- Teaching about skin self-care [10033029].

Evaluation: positive: no pressure sores [10029065].

Nursing diagnosis 7: Risk of infection [10015133] + central pathway [10004115].

Client: Patient [10014132].

Target: no infection [10028945].

Interventions:

- Prevention of infection [10036916].
- Use of aseptic technique [10041784].
- Continuous surveillance [10005093].
- Monitoring for physical signs and symptoms of infection [10012203].
- Maintaining patency of intravenous access [10036577].

Evaluation: positive: no infection [10028945].

Nursing diagnosis 8: Risk of infection [10015133] + urological catheter [10020373].

Client: patient [10014132].

Target: no infection [10028945].

Interventions:

- Urological catheter care [10033277].
- Perineal care [10045154].
- Measuring fluid excretion [10039250].
- Teaching about urological catheter care [10045257].

Evaluation: positive: no infection [10028945].

Nursing diagnosis 9: Overweight [10027300], lack of knowledge of diet regime [10021939].

Client: patient [10014132].

Target: effective body weight [10027385].

Interventions:

- Interaction with the patient [10035873].
- Weight monitoring [10032121].
- Interaction with dietitian [10040435].
- Appetite assessment [10038901].
- Monitoring nutrition [10036032].

- Teaching about nutrition [10024618].
 - Evaluation of psychosocial response to nutrition instruction [10007111].
- Evaluation: positive: improvement in nutritional status [10035569], positive appetite [10040333].

Table 1. Nursing interview

NURSING INTERVIEW OF 14.04.2022	
Gender: female	Age: 73
Marital status: divorced	Education: higher education
Place of residence: city <20,000 inhabitants	Occupation: retired
Body weight: 75kg	Height: 165cm
Medical diagnosis: Left hip joint prosthesis revision surgery.	
Comorbidities: hypertension, hypothyroidism, congenital combined factor V and VIII deficiency, osteoarthritis	
Admission mode: scheduled	Hospital stay: further
Hospital admission dates: 25.01 - 30.01.2022, 09.02.2022 – until today	
Past treatments/surgeries: Right hip replacement 14.05.20212 Left hip replacement 03.12.2012 Revision of left hip replacement 26.01.2022 Left hip reoperation 03.03.2022 Total revision of the left hip joint - removal of prosthesis, insertion of Spacer-type displacer 05.04.2022	
Allergies: negates	Addictions: denies
RESPIRATORY SYSTEM	
Number of breaths: 14/min.	
Nature of breaths: normal breathing, odourless, through the nose, thoracic track	
Saturation: 98%	Dyspnoea: not reported
Cough: none	Sputum: not present
CIRCULATORY SYSTEM	
Blood pressure: 130/85, 140/90, 145/90 mmHg	
Heart rate: 65 to 80/min, steady well-tightened	
Capillary return: <2 sec.	
Peripheral perfusion: normal	Swellings: none
Syncope: did not occur	
NERVE SYSTEM	
State of consciousness: full, 15 Glasgow score	
Teperature: 36.6 °C	
Sleep: normal	Speech: correct
Muscle tension: normal	Injuries: no abnormalities
Other disturbances: no pathology found	
SENSES	
Hearing: normal	Vision: visual impairment, wears glasses
Smell: normal	Taste: correct
DIGESTIVE SYSTEM	
Body weight: overweight, BMI: 27.57	
Oral cavity: no pathology	Dentition: complete
Appetite: normal	Thirst: correct

Excretion: normal	
Diet: easily digestible	
Nausea: negates	Vomiting: none
Other pathologies: not reported	
URINARY AND GENITAL SYSTEM	
Urination: through a Foley catheter	Urine volume: approx. 1700-2000ml/day
Ailments: no pathology	Urine colour: normal
Menstrual cycle: postmenopause	
SKIN	
Humidity: normal	Colour: normal
Changes: postoperative scars in the area of the left greater vertebral body and right greater vertebral body	
Hygienic condition: good	
Pressure sores: none; high risk of developing pressure sores - 11pts according to Norton scale	
MENTAL STATE	
Contact: logical	Memory: complete
Mood: calm	
Orientation: auto- and allopsychically oriented	
SOCIO-ECONOMIC SITUATION	
Residential conditions: good, lives alone	
Family: patient has a sister who shows concern	
Source of income: pension	
SCALES USED DURING THE INTERVIEW	
NRS scale (Appendix 1): 2pts.	
D. Norton scale (Appendix 2): 11pts.	
Barthel scale (appendix 3): 35pts.	

Discussion

Nursing care after hip alloplasty should be provided by an interdisciplinary therapeutic team, which would allow early recognition of the patient's individual problems and needs, which in turn is the basis for the planning and delivery of nursing care and evaluation of the interventions undertaken. The case study presented above describes a post-alloplasty patient with congenital combined factor V and VIII deficiency and uses the ICNP model. The analysis of the patient's biopsychosocial status allowed the formulation of diagnoses and the planning of appropriate nursing interventions. The diagnoses referred to both the physical symptoms complained of by the patient and the chronic problems related to postoperative wound healing, as well as postoperative complications related to wound infection. The analysis confirmed that the ICNP International Classification of Nursing Practice enables both the formulation of nursing diagnoses and the planning of necessary nursing interventions. However, in the case of post-surgical patients, there may be a risk of an insufficiently individualised approach to the patient in the individual days after surgery. The ICNP model of care used proved to be effective in the care of a patient requiring specialised care. All planned activities were implemented and holistic care was successfully delivered. The model of care presented here is an important contribution to the nurses' use of the ICNP classification, whose importance in improving the quality of nursing care continues to grow.

Conclusions

The International Classification of Nursing Practice - ICNP facilitates the way nursing staff communicate with each other, as well as streamlining the drafting of the nursing process, allowing the nurse more time to perform other activities with the patient while on duty.

1. By using the International Classification of Nursing Practice - ICNP, it is possible to present a holistic model of nursing care in patients after revision joint alloplasties.
2. Observation by the nurse plays a very important role, with the aim of spotting as early as possible signs of complications that could threaten the patient's life.
3. Nursing actions depended on the patient's current state of health and the treatment administered. The nursing staff participates in the patient's pharmacotherapy and rehabilitation, and also performs a caring function by compensating for self-care deficits.
4. The patient was educated on self-care and postoperative wound management.
5. Negative pressure wound therapy (NPWT) applied to the patient after alloplastic is an effective tool in the treatment of wounds that are difficult to heal and has contributed to successful wound healing. The use of negative pressure allowed the wound bed to be cleansed of excess exudate and microorganisms, while providing optimal conditions for tissue regeneration. In addition, NPWT therapy improved microcirculation and stimulated the formation of new capillaries.

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