

DOI: 10.15225/PNN.2017.6.3.4

## The use of International Classification for Nursing Practice (ICNP) in Postoperative Care of a Patient Diagnosed with a Spinal Cord Tumor

### Zastosowanie Międzynarodowej Klasyfikacji Praktyki Pielęgniarskiej (ICNP) w opiece pooperacyjnej nad pacjentem z rozpoznaniem guzem kanału kręgowego

Aleksandra Kołtuniuk<sup>1</sup>, Gabriela Gnatowska<sup>2</sup>, Majka Żurczak<sup>2</sup>,  
Aleksandra Pytel<sup>1</sup>, Joanna Rosińczuk<sup>1</sup>

<sup>1</sup>Department of Nervous System Diseases, Faculty of Health Science at Wrocław Medical University, Poland

<sup>2</sup>students, Faculty of Health Science at Wrocław Medical University, Poland

#### Abstract

**Introduction.** Spinal canal tumors are divided into intradural or extradural. Depending on the location, their symptoms differ and the prognosis depends on many variables. The magnetic resonance imaging (MRI) is used as a diagnostic tool facilitating diagnosis of proliferative lesions of the spinal canal, and the surgical treatment is most commonly used treatment for tumors located in the spinal canal.

**Case Report.** A 58 year-old patient diagnosed with Intradural extramedullary schwannoma located on the left side of the spinal canal at the L3 level was admitted to the Neurosurgery Clinic based on a referral for surgical treatment. Before surgery, the patient complained about pain in the lumbar region radiating to the lower limbs, feeling of numbness and tingling of the lower left limb for about 2 months and recurring constipation.

**Discussion.** Patient care after surgery on the spinal cord must be comprehensive. Nursing and therapeutic care should be adopted to the individual needs of the patient following the recommendations.

**Conclusions.** The case of the patient after surgical removal of the spinal canal tumor indicated the difficulties the patient struggled with. Main nursing care activities provided the patient with assistance in meeting his physiological needs, performing daily activities and helping to return to good physical condition. The acquired knowledge contributed to improving the daily functioning and coping with difficult situations. All the actions taken in this field brought the intended effect. (JNNN 2017;6(3):120–125)

**Key Words:** spinal canal tumor, nursing care, International Classification for Nursing Practice ICNP

#### Streszczenie

**Wstęp.** Guzy kanału kręgowego dzieli się na nowotwory umiejscowione zewnątrzoponowo i wewnątrzoponowo. W zależności od lokalizacji charakteryzują się one różnymi objawami, a rokowanie uzależnione jest od wielu zmiennych. Metodą z wyboru używaną w diagnostyce zmian rozrostowych kanału kręgowego jest rezonans magnetyczny. Natomiast zabieg operacyjny jest najczęściej wykorzystywaną metodą leczenia nowotworów zlokalizowanych w kanale kręgowym.

**Opis przypadku.** Pacjent lat 58 z rozpoznaniem wewnątrzoponowego zewnątrzrdzeniowego guza lewego kanału kręgowego o charakterze nerwiaka na poziomie L3 został przyjęty do Kliniki Neurochirurgii w trybie planowym, na podstawie skierowania, w celu leczenia operacyjnego. Przed operacją pacjent skarżył się na ból odcinka lędźwiowego kręgosłupa promieniujący do kończyn dolnych, uczucie drętwienia oraz mrowienia kończyny dolnej lewej od około 2 miesięcy oraz nawracające zaparcia.

**Dyskusja.** Opieka nad pacjentem po zabiegu operacyjnym na rdzeniu kręgowym musi być kompleksowa, a podejmowane czynności opiekuńczo-terapeutyczne należy dostosować do indywidualnych potrzeb pacjenta zgodnie z obowiązującymi zaleceniami.

**Wnioski.** Przypadek chorego po operacyjnym usunięciu guza kanału kręgowego wskazał na trudności, z jakimi zmagał się pacjent. Główne działania pielęgniacyjne zapewniły choremu pomoc w zaspokajaniu jego potrzeb

fizjologicznych, w wykonywaniu czynności życia codziennego oraz pomoc w powrocie do sprawności. Zdobyta wiedza przyczyniła się do poprawy codziennego funkcjonowania i radzenia sobie w trudnych sytuacjach. Wszystkie podjęte działania w tym zakresie odniosły zamierzony skutek. (PNN 2017;6(3):120–125)

**Słowa kluczowe:** guz kanału kręgowego, proces pielęgnowania, Międzynarodowa Klasyfikacja Praktyki Pielęgniarskiej ICNP

## Introduction

Spinal canal tumors are classified according to their location into intradural or extradural tumors. Intradural tumors may be further divided into two groups extramedullary and intramedullary spinal lesions. Intradural tumors account for up to 15% of all central nervous system (CNS) tumors. Extradural tumors represent two thirds of these cases and can arise from the nerve roots (schwannomas and neurofibromas) or dura mater or terminal thread (filum terminale) [1].

The clinical picture depends on the location of a tumor and its size. Limb paresis, general loss of sensation, numbness, incontinence, loss of bowel functions, and pain can be symptoms of the spinal cord tumor. In the case of tumors of the cauda equina, the most common symptom is pain radiating to lower limbs in addition to bladder and bowel dysfunction [2].

Clinical manifestations of intradural extramedullary tumors of the spinal canal are connected with the presence of slowly increasing tumoral mass compression on nerve roots and the spinal cord. Symptoms usually develop at a slow pace, and sometimes they disappear for some time. Diagnosis is most likely to occur about 2 years after the onset of symptoms [3].

Typically, these are benign tumors with good prognosis, curable after their complete resection [4]. Usually, the neurological condition of patients improves immediately after the surgery and mortality rate does not exceed 3%. Deterioration appears in about 15% of patients. Recovery lasts from 6 to 18 months. Complete removal of schwannoma means recovery, but may be deficient due to the need to remove the root from which the tumor has grown [4].

Up to two thirds of intradural tumors are intramedullary, e.g. gliomas accounting for 85% of these lesions. They have worse prognosis than extramedullary tumors as they are very difficult to removing. The first clinical symptom of intramedullary tumors is pain. Patients also have paraesthesia of distal limbs and sensory disturbances, as well as paresis and impaired sphincter control.

The basic test performed for diagnostic purposes in suspicion for tumor of the spinal canal is MR) as it allows imaging of the spinal canal structure throughout its length which can clearly define the relationship of the mass to the cord and it also differentiates intra- and extradural and intra- and extramedullary tumors. Computed tomography (CT) is a diagnostic tool which

effectively examines the bone structure. In selected clinical cases, the selective spinal angiography may be used to demonstrate pathological vascularization of a tumor [5].

The International Classification for Nursing Practices ICNP® is created by a team of specialists from different countries and cultures, taking into account different nursing theories to create a universal framework of nursing terminology. This relatively new tool was initiated in the 1980s. Its goal is to create the classification intended to define every nursing action relative to the patient, each condition and outcome. The classification is not formulated in a purely scientific way, its purpose is primarily to be useful and practical in its application, and to achieve this goal it must be commonly applied and versatile, and above all amenable to new terminology [6].

The aim of the paper was to present the most important nursing issues in patients treated with intradural extramedullary schwannoma on the basis of a case study including nursing diagnoses developed according to guidelines of the ICNP® International Classification of Nursing Reference Terminology [6–8].

## Case Report

Patient: Z.Ł. Age 58.

*Diagnosis: Intradural Extramedullary Schwannoma Located on the Left Side of the Spinal Canal at the L3 Level*

Patient admitted to the Neurosurgery Clinic on a planned admission, referral for surgical treatment. Diagnosis — left side spinal tumor at L3 level based on MRI and clinical symptoms.

Prior to diagnosis, the patient complained about lumbar spine pain radiating to the lower limbs, feeling numbness and tingling of the lower left limb for about 2 months. Symptoms were accompanied by constipation. In the past, he was diagnosed with sciatica however the symptoms subsided after some time. Due to deteriorating condition, the patient decided to pay for the MRI test, which revealed a spinal cord tumor. After a medical consultation, the patient underwent the MRI with contrast that allowed to make a diagnosis. Symptomatic treatment of pain was used until the surgical procedure.

Currently, the patient is staying in the neurosurgery ward. During the perioperative period the patient was provided with a urinary catheter that was removed 2 days after surgery. The postoperative wound is left without drainage, no signs of infection, is protected with antiseptic dressings, which are changed once a day.

After the surgery, the pain in the left leg persists and is assessed using a ten point VAS scale for 6 points. The patient reports persistent numbness and paresis of the left leg which feels cold, constipation, and continuous pain in the postoperative wound. Light swelling of the left lower limb was observed. Due to the condition, the patient does not ambulate on his own and moving around is difficult for him.

During diagnostic procedures and after diagnosis the patient expressed anxiety about his health condition. Currently he is complaining about anxiety, uncertainty and difficulty in falling asleep, these symptoms are most likely due to the fact of illness and the need for hospitalization and difficulties in adapting to the new situation. As a result, he takes sleeping pills, sedatives and analgesics. Due to the inability to move around without assistance and need to stay in bed, the patient needs help in managing daily activities such as physiological needs or maintaining the body and living place hygiene. He also has problems with constipation, so the enema procedure was performed.

The physical examination showed that the heart rate was 80/min, and the blood pressure was normal 120/80 mmHg. In the lungs characteristic vesicular sound. The patient is conscious, in logical verbal contact (15 points in Glasgow scale).

The patient has worked as a salesman to date, living with his wife on the third floor of a block of flats without an elevator, which creates an architectural barrier for independent movement.

## Nursing Procedure

Client: Patient [0014132]

*Diagnosis 1: Neurogenic Pain* [10013125], *Discomfort* [10023066]

Judgement: Moderate [10025865]

Interventions:

1. Patient Controlled Analgesia [10032227]
  - Analgesic [10002279]
  - Evaluating Response to Pain Management [10034053]
  - Administering Pain Medication [10023084]
  - Palliating [10013984]

2. Training [10020007]
  - Calming Technique [10003839]
  - Chest Therapy [10004221]
  - Observing [10013474]
3. Physical Examination [10032258]
  - Nursing Service [10013380]
  - Physiotherapist Service [10014567]
4. Chest Therapy [10004221]
  - Calming Technique [10003839]
  - Autogenic Training Technique [10003031]
5. Diversional Therapy [10039348]
  - Occupational Therapist Service [10013604]
6. Evaluating Response to Pain Management [10034053]
  - Assessment Tool [10002832]
  - Questionnaire [10016229]

Outcome: Knowledge of Pain [10039094], Reduced Pain [10027917]

*Diagnosis 2: Self Care Deficit* [10023410]

Judgement: Deteriorated [10026685]

Interventions:

1. Assessing Self Care [10021844]
  - Assessment Tool [10002832]
  - Assessing Mobility Pattern [10030641]
  - Evaluating Care Plan [10031252]
  - Assessing Need [10033368]
2. Assessing Knowledge of Disease [10030639]
  - Assessment Tool [10002832]
  - Talking [10019436]
3. Teaching About House Safety [10032960]
  - Teaching About Device Safety [10044944]
  - Social Worker Service [10018475]
4. Assisting with Hygiene [10030821]
  - Assisting [10002850]
  - Attending [10002911]
  - Promoting Hygiene [10032477]
  - Facilitating [10007499]
  - Support [10019142]
  - Toileting [10019807]
  - Grooming [10008528]
  - Bathing [10003134]
  - Gettin Dressed or Undressed [10008425]
5. Counselling Patient [10031062]
  - Motivating [10012242]
  - Instructing [10010376]
  - Informing [10010162]

Outcome: Positive Attitude to Care [10022275], Impaired Mobility [10001219], Readiness for Effective Self Care [10025250]

*Diagnosis 3: Surgical Wound* [10019265]

Judgement: Risk for Infection [10015133]

Interventions:

1. Contamination Prevention [10005055]
  - Solution [10018499]
  - Aseptic Technique [10002639]
2. Surgical Wound Care [10032863]
  - Wound Dressing [10021227]
  - Use Aseptic Technique [10041784]
  - Wound Dressing Change [10045131]
3. Evaluating Signs and Symptoms of Infection after Operation [10034069]
  - Assessing Wound [10030799]
  - Observing [10013474]
  - Assessment Tool [10002832]

Outcome: No Infection [10028945]

*Diagnosis 4: Immobilising* [10009762]

Judgement: Risk for Pressure Ulcer [10027337]

Interventions:

1. Pressure Ulcer Prevention [10040224]
  - Observing [10013474]
  - Skin Care [10032757]
  - Teaching About Self Care of Skin [1003302]
  - Physiotherapist Role [10014551]
  - Self Turning [10017833]
2. Hygiene [10009285]
  - Self Bathing [10017657]
  - Dressing [10006253]
  - Self Hygiene [10017769]
3. Assessing Needs [10033368]
  - Observing [10013474]
  - Assessment Tool [10002832]

Outcome: No Pressure Ulcer [10029065], Tissue Integrity [10028555]

*Diagnosis 5: Oedema* [10041951]

Judgement: Moderate [10025865]

Interventions:

1. Skin Care [10032757]
  - Applying Cold Pack [10036468]
  - Assessing Skin Integrity [10033922]
  - Teaching About Self Care of Skin [1003302]
2. Measuring [10011813]
  - Assessment Device [10002734]
3. Managing Oedema [10036793]
  - Managing Exercise Regime [10023890]
  - Fluid Regime [10023701]
  - Encouraging Rest [10041415]

— Positioning Patient [10014761] + Comfort [10004655]

4. Assessing Skin Integrity [10033922]

— Nursing Service [10013380]

— Cream [10005352]

Outcome: No Peripheral Oedema [10029020]

*Diagnosis 6: Constipation* [10004999]

Judgement: Actual [10000420]

Interventions:

1. Mobilising [10012120]
  - Teaching About Exercise [10040125]
  - Patient Activity [10014145]
  - Physiotherapist Role [10014551]
2. Teaching About Nutrition [10024618]
  - Teaching About Diet [10046533]
  - Teaching About Eating Pattern [10032918]
  - Teaching About Water Supply [10038120]
3. Teaching About Giving an Enema [10043639]
  - Educating [10006564]
  - Instructing [10010376]
  - Nurse Role [10013346]
  - Managing Encopresis [10031782]

Outcome: Managing Nutritional Status [10036013], Effective Gastrointestinal System Function [10028016], Effectived Efaecation [10028403]

*Diagnosis 7: Fear About Being a Burden to Others* [10041671]

Judgement: Risk for Situational Low Self Esteem [10015180]

Interventions:

1. Empowering [10006796]
  - Providing Social Support [10027046]
  - Ensuring Continuity of Care [10006966]
  - Family Support [10023680]
  - Occupational Therapist Role [10026539]
  - Providing Emotional Support [10027051]
  - Motivating [10012242]
  - Presencing [10015575]
2. Advising About Employment [10030440]
  - Learning Material [10011251]
  - Reading Material [10016433]
3. Supporting Family [10032844]
  - Promoting Health Seeking Behaviour [10032465]
  - Assessing Emotional Support [10030589]
  - Supporting Family Coping Process [10032859]

Outcome: Positive Self Esteem [10025751], Acceptance of Health Status [10044273], Knowledge of Safety

Measure [10021973], Family Knowledge of Disease [10037658], Reduced Chronic Sadness [10027862]

## Discussion

Due to the limitation of self-reliance resulting from neurological deficits, nursing care for a patient after a spinal cord tumor resection is primarily intended to provide help to meet the patient's physiological needs, to perform daily activities, and aid in recovery [9]. In the reported case, the nursing care activities aimed at assisting the patient in self-care activities [9,10]. Undertaken activities were to reduce pain, as one of the most important elements of postoperative care is eliminating pain [11]. A nurse is responsible for identifying the patient suffering from pain, thorough observation of patient's reaction to pain and timely application of analgesics [12]. In the reported case, the severity of the patient's suffering was estimated with the subjective scale of pain measurement to determine an appropriate dose of medication to be administered. Such planned actions brought the expected effect of relieving pain and better cooperation during nursing care activities.

Due to the constipation, which is a consequence of the disease process and immobility, it was proposed to change the diet and increase the intake of fluids [9,13]. The actions taken brought the expected result — regulated bowel movements and improved patient comfort.

More attention was also paid to emotional problems. Fear and anxiety related to the future are frequent feelings experienced by patients with trauma [14] or spinal disease [9]. In order to solve them, educational actions were introduced and elements of elementary psychotherapy were introduced to improve the mood of the patient.

The application of International Classification for Nursing Practices (ICNP®), thanks to its versatility, enables the standardization of documentation regarding the provision of nursing care and the interpretation of data at international level and provides a guarantee of continuity of care in every location. Such standardization provides an opportunity to improve the quality in the comprehensive care of the patient [6–8].

Introduction of the ICNP to the daily work of nurses will improve the quality of planning and management of nursing care, as well as the analysis of patient care outcomes. It will also allow to plan the economic and financial components of nursing activities and to pinpoint the competencies that nurses possess. Perhaps it will also allow to set human resources standards. However, such a taxonomic system encounters difficulties in the form of a huge and fast growing area of the nursing profession, imprecise definition of competence and coexistence of

humanistic segment in this profession. Placing such abstract elements like philosophical approach to profession, approach to the patient, environment, or support or emotional involvement is difficult if not impossible to place in the framework. It is promising that the International Classification for Nursing Practices (ICNP®) is being constantly developed and updated by the International Nursing Council on the basis of the experience of nurses around the world [6].

## Conclusions

The studied case of the patient after surgical spinal cord tumor resection allowed to identify difficulties connected with symptoms of a spine injury or surgical procedure that a patient struggles with. Holistic approach to patient problems enhances the beneficial effects of the treatment, resulting in progressive improvement. It determines the return to independent life.

## Implications for Nursing Practice

The post-operative nursing care process in patients after a spinal cord tumor surgery which includes ICNP diagnosis will allow the neurological nurses to plan and implement effective nursing care. They will serve to solve the patients problems. The ICNP diagnosis make the nursing process clear and understandable for all nurses regardless of the workplace.

## References

- [1] Jaskólski D.J., Liberski P.P., Michałak S. Nowotwory ośrodkowego układu nerwowego i neurologiczne zespoły paranowotworowe. W: Kozubski W., Liberski P.P. (Red.), *Neurologia. Podręcznik dla studentów medycyny*. Wydawnictwo Lekarskie PZWL, Warszawa 2011;487–489.
- [2] Jarmundowicz W., Mraz M. Rehabilitacja w neurochirurgii. W: Woźniewski M., Kołodziej J. (Red.), *Rehabilitacja w chirurgii*. Wydawnictwo Lekarskie PZWL, Warszawa 2006;213–214.
- [3] Jaskólski D.J., Papierz W., Biernat W., Liberski P.P. Nowotwory ośrodkowego układu nerwowego. W: Kozubski W., Liberski P.P. (Red.), *Choroby układu nerwowego*. Wydawnictwo Lekarskie PZWL, Warszawa 2004;185–190.
- [4] Radek M., Tomasik B., Wojdyn M., Snopkowska-Wiaderna D., Błaszczak M., Radek A. Neurofibromatosis type 2 (NF 2) or schwannomatosis? — Case report study and diagnostic criteria. *Neurol Neurochir Pol.* 2016;50(3): 219–225.
- [5] Fijuth J., Dziadziuszko R. (Red.), *Nowotwory ośrodkowego układu nerwowego*. 2013;64–68.

- [6] Kisilowska M. Systemy informacyjne w ochronie zdrowia — zarys problemu. W: Kilańska D. (Red.), *Międzynarodowa Klasyfikacja Praktyki Pielęgniarskiej. ICNP® w praktyce pielęgniarskiej*. Wydawnictwo Lekarskie PZWL, 2014;13–15.
- [7] Pielęgniarstwo Środowiskowe. Międzynarodowa Klasyfikacja Praktyki Pielęgniarskiej, katalog. Retrieved December 21, 2016, from <http://www.telenrscare.umed.pl/pliki/KatalogICNPPiel%C4%99gniarstwo-%C5%9Arodowiskowe1.pdf>.
- [8] Kuberka I., Kołtuniuk A., Michalak M., Pytel A., Rosińczuk J. Zastosowanie Międzynarodowej Klasyfikacji Praktyki Pielęgniarskiej (ICNP) w opiece okołoperacyjnej nad pacjentem z rozpoznaniem chrząstniakomięśakiem kości krzyżowej. *Współcz Pielęg Ochr Zdr.* 2016;5(4):118–120.
- [9] Szweda A., Chantsoulis M., Świątkowska-Wróblewska K., Sakowski J. Holistyczne podejście do pacjenta w celu optymalizacji leczenia guzów wewnątrzkanałowych kręgosłupa. *Probl Pielęg.* 2010;18(4):518–522.
- [10] Grabowska H., Grabowski W. Problemy pielęgnacyjne chorych w okresie pooperacyjnym w ujęciu Międzynarodowej Klasyfikacji Praktyki Pielęgniarskiej. *Probl Pielęg.* 2014;22(3):379–384.
- [11] Ulatowska A., Bączyk G., Włodarczyk E., Bosacka M. Specyfika opieki pielęgniarskiej nad pacjentem starszym leczonym chirurgicznie. *Pielęgniarstwo XXI wieku.* 2015;3(52):74–80
- [12] Paszkiewicz-Mes E. Rola pielęgniarki w leczeniu bólu po zabiegu operacyjnym. *Pielęgniarstwo XXI wieku.* 2011;4(37):37–41.
- [13] Lorencowicz R., Flis D. Postępowanie w zaburzeniach defekacji. W: Adamczyk K., Turowski K. (Red.), *Procedury pielęgnowania w neurologii i neurochirurgii*. Wyd. NeuroCentrum, Lublin 2007:101–103.
- [14] Borowik A., Szymczuk J., Kukowska D. Ocena jakości życia u chorych z paraplegią. *Zeszyty Naukowe.* Wyd. Wyższej Szkoły Agrobiznesu w Łomży, 2013;51:13–20.

---

**Corresponding Author:**

Aleksandra Kołtuniuk  
 Zakład Chorób Układu Nerwowego  
 Wydział Nauk o Zdrowiu  
 Uniwersytet Medyczny we Wrocławiu  
 ul. Bartła 5, 51-618 Wrocław, Poland  
 e-mail: aleksandra.koltuniuk@umed.wroc.pl

**Conflict of Interest:** None

**Funding:** None

**Author Contributions:** Aleksandra Kołtuniuk<sup>A, C, E-H</sup>, Gabriela Gnatowska<sup>B, C, E, F</sup>, Majka Żurczak<sup>B, C, E, F</sup>, Aleksandra Pytel<sup>E, G, H</sup>, Joanna Rosińczuk<sup>G-I</sup>

(A — Concept and design of research, B — Collection and/or compilation of data, C — Analysis and interpretation of data, E — Writing an article, F — Search of the literature, G — Critical article analysis, H — Approval of the final version of the article, I — Acquisition of assets [eg financial])

**Received:** 23.04.2017

**Accepted:** 25.05.2017