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Selected aspects of nursing care for a patient after ischemic stroke in a care and treatment facility - a case study

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Summary

Cerebrovascular diseases (including strokes) are currently the second leading cause of death in the world [1,2]. In Poland, statistical data are quite diverse, depending on their source. Stroke patients are often at risk of chronic disability. A significant number of them are doomed to lose their independence and self-care for the rest of their lives.

The aim of the study is to present selected nursing problems and ways to solve them in a patient after ischemic stroke who requires round-the-clock care in the field of nursing and care services as part of inpatient long-term care. The subject of the study is the process of nursing a patient diagnosed with ischemic stroke who requires round-the-clock care in the field of nursing and care services as part of long-term care. The study uses a research method - a case study, supported by individual observation, measurements, interview and analysis of medical records. Two scales were used to assess the patient's condition: Barthel and Norton.

Conclusions:

1. The individual care plan takes into account the most important problems arising from the specificity of the disease entity, needs and individual situation of the patient.
2. The patient's care problems after a stroke are presented and proposed an effective solution to ensure the best possible care.
3. Nursing and care difficulties have been properly recognized, which has enabled appropriate nursing interventions.
4. Due to systematic prophylactic measures, the patient did not suffer from complications.
5. A detailed interview and careful observation made it possible to plan and implementation of interventions (not only nursing) to provide comprehensive care.
6. The urgent procedure of admitting the patient to the care and treatment facility contributed to the improvement of the quality and availability of health care services, which translated into an improvement in the patient's general condition.

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Conflict of interest

The authors declare no conflict of interest.

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Introduction

Cerebrovascular diseases (including strokes) are not only a significant medical, but also social and economic problems. They are now the second cause of death in the world (the first are cardiovascular diseases) [1,2]. Statistics on this subject vary depending on the source [3, 4]. The first descriptions of stroke date back to antiquity. Hippocrates compared the suddenness of the symptoms to a lightning strike. Another ancient physician, Claudius Galenus, claimed that strokes were caused by mucus blocking the ventricles of the brain [1]. Stroke, as defined by the World Health Organization (WHO) in 1970, is a rapidly progressing symptom of focal (or generalized) cerebral dysfunction lasting more than 24 hours or leading to death, not caused by any other cause than vascular. The last time stroke was redefined was in 2013. According to the American Heart Association and the American Stroke Association (abbreviation: AHA/ASA), stroke also includes focal symptoms lasting less than 24 hours, with confirmation of ischemia on neuroimaging or resolution of symptoms after thrombolytic therapy without a confirmed focus on imaging [1,2,5,6].

According to estimates, about 15 million people experience a stroke each year, including 5 million deaths and another 5 million disabilities [3,5,6,7].

A stroke is the death of part of this organ due to the cessation of blood supply to brain tissue. It is a life-threatening condition, which is an absolute indication for urgent hospitalization (preferably in a specialized stroke unit). Etiologically, stroke is divided into: ischemic stroke – caused by the cessation of blood supply to a part of the brain (80% - 90% of stroke cases) due to cerebral artery occlusion, and hemorrhagic stroke – caused by a rupture of the cerebral artery wall and blood escaping from the vessel (20-10% of cases) [1,2,7]. The American outstanding neurologist C. Miller Fisher discovered TIA (transient ischemic attack). In practice, it means the same neurological disorders as in a stroke, which completely disappear within 24 hours (their duration ranges from 2 to 15 minutes). Therefore, the only criterion is the time that allows to differentiate stroke from TIA [1,2,3,7].

Poland is a country where strokes are one of the most common causes of death and disability. The number of cases in our country is estimated at 75,000 per year. This condition is more common in men (175) than in women (125) cases per 100,000 inhabitants [1,8,9].

Stroke survivors are at risk of chronic disability. A significant number of them lose their independence for the rest of their lives and are unable to take care of themselves. This paper presents a case study of a patient who, as a result of another (second) ischemic stroke, requires care and is completely dependent on medical personnel.

Aim of the study

The main aim of the study is to present selected care problems and ways to solve them in a patient after an ischemic stroke who requires round-the-clock care in the field of nursing and care services as part of inpatient long-term care.

Description of the state of knowledge

The paper describes the process of nursing a 56-year-old female patient after a second ischemic stroke, requiring round-the-clock care in the field of nursing and care services within a care and treatment facility. In the care of the patient, special attention was paid to selected nursing problems resulting from the specificity of the disease. The case report was made on the basis of an individual and systematic observation of the patient, interview with her immediate family (daughter), test results and analysis of medical records.

Research method, techniques and tools

The study uses a research method which is a case study of a patient after another ischemic stroke, supported by individual observation of the patient, measurements of basic vital signs, and an interview with the family (daughter) and analysis of medical documentation (medical history, test results, individual nursing and medical observations, medical order card monitoring of vital signs). Two scales were used to assess the patient: Barthel and Norton.

The Barthel Score (Maryland Disability Index), developed by physical therapist Dorothea Barthel and physician Florence Mahoney in 1955 to assess the clinical outcomes of stroke patients, was published in 1965. The international Barthel scale was introduced in Poland on 23 December 2010 in order to grant patients the right to guaranteed nursing and care services in the field of long-term care (inpatient or home) [10,11]. It is one of the ADL (Activities of Daily Living Index) scales. Its purpose is to determine how independent the patient is in terms of self-care. It is also used to assess mobility and care needs. Special printing of the Barthel scale, attachment no. 2 to the regulation of the Minister of Health is completed by a doctor and a nurse when qualifying a patient for long-term care or extending his or her stay in the facility [11]. A score from 0 to 40 on the Barthel scale qualifies the patient for long-term care services as part of the reimbursement of the National Health Fund (abbreviation: NHF). Unfortunately, a patient who has obtained more than 40 points will not be able to benefit from the above subsidy [10,11,12].

The assessment of the patient's score according to the Barthel scale includes 10 aspects – activities that a healthy person performs independently, while a sick person may require partial or full assistance [11]:

- eating meals,
- movement,
- maintaining personal hygiene,
- use of the toilet,
- washing, bathing the whole body,
- moving on flat surfaces,
- going up and down stairs,

- dressing and undressing,
- controlling stool,
- controlling urine.

In each of these aspects, possible answers are given, describing the patient's ability to perform the given activities. They are scored: 0, 5, 10, 15 points [11,12].

The general point classification of the Barthel scale is as follows:

- 0 - 20 points - total dependency,
- 20 - 80 points - the patient needs the help of an external person to some extent,
- 80 - 100 points - the patient can function independently with a little help from a caregiver or nurse.

The maximum number of points that a patient can obtain in assessment according to the Barthel scale this 100 points.

The Norton Scale this a practical, simple and clear scale for assessing the risk of pressure sores. It was established in the 40s of the twentieth century. It is named after Doreen Norton (1922 – 2007), a British nurse specializing in geriatric nursing. She was one of the first to introduce regular changes in the patient's position in order to effectively "fight" bedsores. The scale includes risk factors (from 1 to 5), such as: physical condition and consciousness, activity (ability to move), degree of independence when changing position and function of the sphincters and urethra. The Norton scale can be used on a patient after surgery or during a period of illness. Particularly useful is the in health care facilities and nursing homes, to assess the risk of developing pressure ulcers in a given person [13, 15]. The maximum number of points a patient can score is 20 points. Below 14 points, there is a risk of pressure ulcers, which increases with decreasing points. With the number of points obtained, professional care is applied with the use of, e.g, preventive measures (skin care with dedicated preparations, frequent changes of position - every 2 hours, anti-bedsores mattresses) and regular monitoring of the general condition of patients [14,15].

The Norton scale diagram is shown in Table 1.

Table 1. Norton scale

RISK FACTOR		POINTS			
		4	3	2	1
1	Physical state	good	pretty good	medium	very heavy
2	State of consciousness	full awareness and awareness	apathy	disorders of consciousness	stupor or coma
3	Activity (ability to move)	walks independently	walks with assistance	weelchair only	constantly stays in bed
4	Degree of independence when changing position	full	limited	very limited	total disability
5	Function of the anal and urethral sphincters	full function of the sphincters	occasional enuresis	usually urinary incontinence	complete failure to receive stool

Source: In-house analysis based on: https://nursing.com.pl/strapi-proxy/nursing/image/Nursing_Skala_Norton_A4_0721_A_v3_e8e4efa62b.pdf/ dated: 17.01.2024 [15].

The process of caring for a patient after an ischemic stroke.

Clinical case report.

The case report was carried out in 2024 at the Lech and Maria Kaczyński Independent Public Complex of Health Care Facilities Pionki – Presidential Couple with its registered office at 1 Niepodległości Street, it was made on the basis of observations during the stay in the facility, an individual interview with the patient's family (daughter), the tests carried out and their descriptions.

An patient with initials HD, 56 years old female, admitted to a care and treatment facility as a matter of urgency (11.2023) in order to provide nursing and care services as part of long-term

care provided in inpatient conditions. Upon admission, as well as during hospitalization, control nasopharyngeal swabs were performed three times to detect the presence of influenza A and B antigens, COVID-19 and RSV viruses (COMBO test). All the results received were negative. During her stay, she was vaccinated with the Nuvaxovid vaccine, against the kraken subvariant of the COVID-19 virus. Prior to Long-term Care Facility admission, the patient received three doses of the Comirnaty vaccine.

According to an interview with her daughter, the patient (HD) was an accountant by profession. He is now retired. marital status: widow. She lives alone in the house. Social and living conditions are good. The overall financial situation is stable. She has two children, a son (with whom she has no contact) and a daughter who is a teacher by profession.

There are no addictions. Normal body structure. Body weight 75 kg, height 168 cm. Body Mass Index (BMI) - 24.8 kg/m² (normal). The skin is clean and well-groomed. Bedsores and chafing were not found. On the Norton scale, the patient received 12 points, which indicates the risk of pressure sores. Blood pressure measured on both upper limbs range: from 155/140 mm Hg (systolic) to 95/90 mmHg (diastolic). Pulse on peripheral arteries of the same name well palpable, 80 beats per minute. Saturation 98% SpO₂. Body temperature 36.6 degrees Celsius. Number of breaths 16 per minute. Cough, shortness of breath does not occur. A woman requires assistance in all activities of daily life. Grade according to the Barthel scale on the day of adoption 5 points, currently (as of 15.01.2024) 10 points. He requires help eating and drinking due to right-sided hemiparesis.

Neurological examination (dated 16.01.2024): Trace right-sided hemiparesis, reflex syndrome on the left. Babiński's symptom is mutually negative. The patient eagerly establishes verbal contact, distorted orientation as to time and place.

Permanent prescription medications include: Acard 750 mg 1 x 1 tabl. – anticoagulant, Torvacard 20 mg 1 x 1 tabl. evening – a drug that lowers serum cholesterol and lipoproteins, Tritace 5 mg 1 x 1 tabl. – the medicine used in the treatment of hypertension and in the prevention of cardiac episodes, Bisocard 5 mg 1 x 1 tabl. in the morning – a drug that slows down the heart rate and lowers blood pressure, Polfilin 400 mg 1 x 1 tabl. – peripheral vasodilator, Estazolam TZF 2 mg 1 x 1 tabl. night – a drug with hypnotic and anticonvulsant effects.

Analysis of information sheets

A patient who suffered a second ischemic stroke (09.2023), after hospitalization in the Neurological Ward with the Stroke Subunit (11 days) and the Rehabilitation Department at the Dr. Tytus Chałubiński Specialist Hospital in Radom, 1 Tochtermanna Street, where hospitalization lasted a total of about 4 weeks. Diagnosis at discharge: Ischemic stroke. Vascular multifocal brain injury. Urinary retention on the first day of hospitalization (Emergency Division, ED). Condition after ischemic stroke in 2022. Condition after removal of the left parietal meningioma in 2014. Hypertension. Condition after right hip arthroplasty in 2013.

The patient presented to the Emergency Division due to fainting and falling from her own height, as a result of which she suffered contusions to both elbow joints and the right wrist. In the ED, a CT scan of the head without contrast enhancement (87.030) and an ultrasound of the abdomen were performed (88,761). In addition, urinary retention occurred. On physical examination, the alveolar respiratory murmur was normal, symmetrical, RR 150/100 mmHg, HR 110 bpm, oxygen saturation 98% SpO₂, body temperature 36.8 degrees Celsius. From the ED, the patient was transferred to the Neurological Ward with a stroke section for further diagnosis and treatment. On the day of admission, an interview was conducted, materials were collected for follow-up examinations and monitoring of basic vital signs was ordered. During the hospitalization in the Neurology Ward with the stroke subunit, another CT scan of the head without contrast enhancement (87,030), MRI of the brain without and with contrast enhancement (88,912), chest X-ray (87,440), ultrasound of the neck vessels – Doppler (88,714) were performed. Psychological and neurological therapy was administered (93.86). The test results are described in detail in the patient's individual medical records. Two consultations were held: rehabilitation (as a result of which the patient was qualified for rehabilitation in the conditions of the neurological rehabilitation ward and cardiology - it was recommended to monitor blood pressure with the use of medical equipment (Holter type) – Holter RR. Epicrisis: The CT image of the head without contrast enhancement performed on 01/10/2023 has not changed compared to the previous examination on 02/10/2023. On admission in the neurological examination, the patient suffered from slowed movement, motor aphasia, and right-sided hemiparesis of the third degree of Lovett. In brain imaging studies in the periventricular white matter in the posterior part of the left frontal lobe and

partially in the projection of the posterior branch of the internal capsule, the foci correspond to a fresh ischemic lesion and both hemispherically numerous chronic vascular lesions. Condition after craniotomy on the left side on the border of the frontal and parietal bone. In the course of pharmacological treatment according to an individual order card and rehabilitation, the neurological condition has stabilized. Right-sided hemiparesis was partially reduced. In a stable general and neurological condition, the patient was discharged from the ward with recommendations and transferred to the rehabilitation ward.

The process of caring for a patient after an ischemic stroke

The nursing process was based on the patient's problems, both on the day of admission to the care and treatment facility and during the stay later.

Nursing Diagnoses

Diagnosis 1.

Anxiety, fear and anxiety on the day of admission to the care and treatment facility.

Purpose of Care:

- Lowering levels of anxiety and fear.
- Providing a sense of security.

Nursing interventions:

- Establishing and maintaining verbal and eye contact with the patient.
- Familiarization with the topography of the care and treatment facility and the members of the interdisciplinary team in order to minimize the level of anxiety, fear and anxiety.
- Providing a sense of security (mental and physical) by showing support.
- Constant showing of respect, patience, kindness.
- Providing and enabling contact with the family.

Assessment:

Anxiety, fear, and anxiety levels were minimized. The problem requires further observation during the patient's further stay in the care and treatment facility.

Diagnosis 2.

Difficulties in self-care and self-care caused by right-sided paresis resulting from an ischemic stroke.

Purpose of Care:

- Providing and assisting in meeting bio-psycho-social needs.
- Implementing and teaching the principles of self-service and self-care
- Improving the patient's self-service efficiency.

Nursing interventions:

- Individual assessment of the patient's degree of fitness.
- Regular assistance with activities of daily living (toileting, eating, dressing and undressing).
- Systematic learning of self-service and self-care activities.
- Providing support by members of the interdisciplinary team.
- Constant and systematic cooperation with a physiotherapist.
- Performing rehabilitation exercises (starting the patient) with the use of auxiliary orthopaedic equipment.
- Education on the possibility of using a variety of auxiliary equipment.
- Involving the paresis in performing basic life activities (e.g. Setting up a cabinet on the sick side).

Assessment:

Difficulties in self-care and self-care were reduced as a result of regular learning and exercise and the patient's positive attitude. The patient was partially introduced to self-care and self-care. In simple activities, the hand not affected by paresis (feeding, watering, dressing) is still operated with the help of a helper. As a precaution, she tried to get up and move from her bed to her wheelchair. In the rehabilitation room, he willingly exercises (e.g. there have been attempts to stand upright, stand by a ladder, use a rotor to perform upper and lower limb

exercises) and walk in a stander. The problem requires further observation and systematic action. The patient still requires assistance with complex activities (e.g. changing diapers, preparing meals, dressing and undressing).

Diagnosis 3.

Risk of bedsores, chafing and micro-injuries.

Purpose of Care:

- Use of bedsore prophylaxis.
- Elimination of risk factors.
- Increasing the patient's physical activity.

Nursing interventions:

- Pressure ulcer risk assessment (according to the Norton scale).
- Regular change of position in bed (every 2 hours – also at night).
- Evenly distributing the weight of the body in bed to eliminate significant pressure on one area of the body.
- Systematic skin care (body toilet 2 times a day and depending on the need, thorough drying, ventilation of intimate areas, patting and massage of places particularly exposed to long-term pressure, regular oiling).
- Frequent change of pants according to the individual needs of the patient (selection of the appropriate size and absorbency).
- The use of an anti-bedsore mattress.
- Frequent change of personal linen and bed linen (breathable fabrics
- And moisture-absorbing).
- Ensuring intimacy and respect for personal dignity while performing hygiene and care activities.
- Regular irrigation (1.5 liters per day).
- The use of a diet high in protein and rich in mineral salts.

- Motivating to exercise,
- Cooperation with a physiotherapist.

Assessment:

So far, there have been no bedsores or chafing on the patient's skin. According to the Norton scale used, the patient received 12 points. The physiotherapist systematically increased the range of exercises. In addition, a stand up and walking test was used with belaying with the use of rehabilitation equipment (walker). The problem requires further systematic care and careful observation.

Diagnosis 4.

The possibility of urinary and genital complications due to the permanent presence of a Foley catheter in the bladder.

Purpose of care: to prevent complications caused by the presence of a catheter in the bladder.

Nursing interventions:

- Frequent and regular hydration (1.5 liters per day).
- Ensuring intimacy and respect for personal dignity while performing hygiene and care activities.
- Systematic body hygiene, with particular emphasis on the perineal area.
- Regular change of pants according to the individual needs of the patient.
- Bladder catheterization according to the doctor's order, observing the principles of asepsis and antiseptic (selection of the size and type of catheter according to the anatomical conditions of the urethra);
- Continuous monitoring of symptoms of infection of the intimate area (burning, redness, soreness and swelling).
- Adherence to the principle of placing urine bags below the bladder (obligation to use urine bag hangers).
- Systematic emptying/replacement of urine bags in accordance with the applicable rules.

- Observation of the quantity and quality of urine excreted.
- Keeping a fluid balance in accordance with the doctor's order.

Assessment:

The risk of urinary and genital complications due to the presence of a permanent Foley catheter in the bladder has been reduced. The patient did not report any disturbing urinary tract symptoms. Urine excreted: clear, straw-coloured, in the amount of about 1500-1800 ml per day. The problem requires further observation.

Diagnosis 5.

Hypertension. Risk of cardiovascular complications (including the possibility of a repeat stroke).

Purpose of Care:

- Prevention of complications.
- Reduce the risk of another stroke.

Nursing interventions:

- Systematic monitoring of blood pressure values (documenting records in the applicable medical records).
- Observation for abnormal blood pressure values.
- Regular pharmacotherapy in accordance with the individual medical order card.
- Evaluation of actions taken and their follow-up.
- Cooperation with the patient (including family education) in the field of modifiable risk factors for stroke.

Assessment:

The problem requires further observation and action.

Diagnosis 6.

Risk of thromboembolism.

Purpose of Care:

- Anticoagulant prophylaxis.

Nursing interventions:

- Regular change of position in bed (at least every 2 hours).
- Conducting breathing gymnastics and anticoagulant exercises.
- Systematic patting of the squares and chest.
- Performing massage of the lower limbs.
- Use of anticoagulant stockings;
- Observation of the lower limbs for swelling, warming of the skin, numbness or pain.
- Fluid balance;
- Standing upright and gait test in a stander with the assistance of a physiotherapist.
- Evaluation of activities and their follow-up.

Assessment:

Complications associated with the threat of thromboembolism did not occur. The patient willingly cooperated with the physiotherapist in the field of exercises (breathing and anticoagulant), standing upright and walking. The problem requires further observation and systematic follow-up.

Diagnosis 7.

Longing, lack of direct contact with the closest family (daughter).

Purpose of Care

- Improved well-being; minimizing the feeling of longing.
- Providing a sense of security.

Nursing interventions:

- Initiating a conversation with a psychologist.

- Providing psychological support through accompaniment.
- Showing warmth, understanding and empathy
- Enabling contact with the family (organizing a video call using a mobile phone and available applications).
- Organizing a visit – a face-to-face meeting in compliance with the applicable procedures and sanitary regime.

Assessment:

The feeling of longing has decreased, but the problem has not been definitively eliminated. The problem requires further action.

Conclusions:

1. In accordance with the assumed aim of the study, the patient's care was carried out in accordance with the diagnosed needs. The individual care plan takes into account the most important problems resulting from the specificity of the disease, needs and individual situation in which the patient finds herself. In order to provide professional care and support, the best possible solutions have been presented.
2. The assumed aim of the study, which was to present selected care problems of the patient after a stroke, to present their solution and to propose the best possible care, was achieved.
3. Nursing and care problems were accurately diagnosed, thanks to which nursing interventions were undertaken and implemented.
4. Despite her anxiety, fear and anxiety on the day of admission to the care and treatment facility, the patient did not feel any discomfort, she felt better and better, and the necessary help (mental, physical) and support provided to her made her feel safe among the medical staff.
5. Due to systematic prophylactic measures, the patient did not suffer from to the occurrence of various complications.
6. A thorough interview with the patient's daughter and further in-depth observation allowed for the planning and implementation of interventions, not only nursing interventions necessary to ensure professional care for the patient.

7. The urgent procedure of admission to the care and treatment facility has been entered in the implementation of Goal No. 2 of the National Health Fund Strategy for 2019-2023, i.e. improving the quality and availability of health care services [12].

Patient consent: Not applicable. This case report does not require consent.

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