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Nursing Care of Patient with Acromegaly Disease — Case Report

Opieka pielęgniarska nad pacjentem z akromegalią — opis przypadku

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Abstract

Pituitary tumors are the most common tumors of benign brain tumors, accounting for about one-fifth of all intra cranial tumors. Pituitary tumors include; nonfunctional adenomas and prolactinomas are followed by tumors that secrete growth hormone or acromegaly. Physical changes and systemic complications caused by acromegaly have negative effects on the bio-physiological, psychological and social dimensions of individuals. Diagnosis, treatment, care and follow-up of the disease; It requires a approach to multidisciplinary from endocrine to neurosurgery. The nurse should know the signs and symptoms of the disease, treatment, side effects that may be caused by the treatment, complications and the care interventions to solve the problems that arise and should plan the individualized care to improve the psychological health and quality of life by increasing the individual's biophysiological functions. The use of the nursing process for the scientific and systematic realization of the care, as well as the use of the nursing process to get her with a model/theory, guide the nurse in the provision of individualized care. In this context, individualized care of the patient who is planned to be operated due to acromegaly, a rare disease, is discussed by integrating with the Model of Nursing. (JNPN 2019;8(4):162–169)

Key Words: acromegaly, nursing care, nursing diagnosis

Streszczenie

Guzy przysadki mózgowej są najczęściej spotykanymi typami łagodnych guzów mózgu i stanowią około jednej piątej wszystkich guzów wewnątrzczaszkowych. Wśród guzów przysadki mózgowej są niefunkcjonalne gruczolaki i prolaktynomy, a następnie guzy wydzielające hormony wzrostu lub akromegalia. Zmiany fizyczne i powikłania systemowe spowodowane akromegalią mają negatywny wpływ na biofizjologiczny, psychologiczny i społeczny wymiar jednostek. Rozpoznanie, leczenie, opieka i monitorowanie choroby wymagają wielodyscyplinarnego podejścia, od endokrynologii po neurochirurgię. Pielęgniarka powinna znać objawy choroby, leczenie, działania niepożądane, które mogą być spowodowane leczeniem, powikłania i interwencje opiekuńcze w celu rozwiązania pojawiających się problemów oraz powinna zaplanować zindywidualizowaną opiekę w celu poprawy zdrowia psychicznego i jakości życia poprzez zwiększenie funkcji biofizjologicznych jednostki. Zastosowanie procesu pielęgniarskiego do naukowej i systematycznej realizacji opieki, a także wykorzystanie procesu pielęgniarskiego do uzyskania jej modelu/teorii, pomaga pielęgniarce prowadzić zindywidualizowaną opiekę. W tym kontekście omawia się zindywidualizowaną opiekę nad pacjentem, który ma być operowany z powodu akromegalii, rzadkiej choroby, poprzez integrację z modelem pielęgniarstwa. (PNN 2019;8(4):162–169)

Słowa kluczowe: akromegalia, opieka pielęgniarska, diagnoza pielęgnacyjna.

Introduction

Pituitary tumors are tumors originated from anterior pituitary cells and are the most common tumors of benign brain tumors, accounting for about one-fifth of all intracranial tumors [1]. Slow-growing pituitary tumors

are benign tumors and occasionally show invasion [2]. However, they can progress with serious morbidity and mortality due to hormonal changes affecting all of the biological processes of the body and the pressure effect of the tumor on the nearby structures [2,3]. Pituitary tumors are classified as hormone-secreting and non-

hormone-secreting tumors, and growth hormone-secreting tumors cause acromegaly disease [4,5].

Acromegaly is a disease with high morbidity and mortality and characterized by excessive secretion of growth hormone (GH) and insulin-like growth factor 1 (IGF-1) [4,6–8]. The incidence of the disease is reported to be 2–11 cases/year per million and its prevalence is reported to be 28–137 cases/year per million [4]. Acromegaly has an insidious onset and the development of clinical findings is slow; therefore, the period between the onset of the disease and the diagnosis may be delayed by an average of 7–10 years. The mean age at the time of diagnosis is reported to range from 40 to 47 [4,6–8].

Clinical signs and symptoms in acromegaly vary according to the age of the patient, level of GH and IGF-1 elevation, tumor size, possible pressure effect and delay in diagnosis [9]. Growth of hands and feet with soft tissue swelling, prominence in frontal protrusions, growth of nose, tongue, and lips, jaw-closing defect with a diastema between teeth, pronounced facial lines, excessive sweating, excessive oily skin, and muscle weakness are seen due to the over-secretion of GH. Headache and visual impairment may also occur due to the pressure created by the tumor. Typical acromegalic facial appearance is observed in the majority of patients at the time of diagnosis. The increase in shoe size and inability to put a ring on their finger due to swelling, which are usually expressed by patients, are important indicators for diagnosis. When acromegaly is not treated, obstructive sleep apnea syndrome, hypertension, glucose intolerance, diabetes, excessive snoring, frequently accompanies acromegaly due to high levels of GH and IGF-1, which adversely affects the quality of life of individuals [4,6,8–10]. Mortality is known to increase 2-fold in patients with acromegaly depending on the presence of cardiovascular diseases, respiratory diseases, and cancer [4].

Physical changes and systemic complications caused by acromegaly have a negative effect on the bio-physiological, psychological, and social dimensions of individuals. Therefore, treatment and care in acromegaly disease are planned to improve psychological health and quality of life by increasing the bio-physiological functions of individuals.

Diagnosis, treatment, care, and follow-up of acromegaly disease requires a multidisciplinary approach. The nurse, who has many roles in this approach, determines the needs of the individual with effective diagnosis and realizes the education practices together with the individualized care appropriate to these needs. In this context, the nurse should know the signs and symptoms of the disease, treatment, side effects that may be caused by the treatment, complications, and care interventions which intended arising to solve the problems.

The aim of the work is to show nursing care of patient with acromegaly disease.

Case Report

A twenty-nine-year-old female patient began to experience physical changes such as swelling of hands and feet and growth of her nose about six years ago. When she applied to the health institution due to influenza in 2016, she stated that she was disturbed by the change in her physical appearance during the examination, but no further examination was planned related to this condition. The growth of hands and feet has increased even more in the last three years, and her shoe size increased from 38 to 42. She applied to a private plastic surgery clinic with aesthetic concerns due to more pronounced growth of her nose; however, it was stated that her nasal structure was not suitable for plastic surgery after the examination and no information was given to her regarding acromegaly disease during the examination. She was admitted to the internal medicine outpatient clinic of a private hospital on the development of complaints of increasing change in her physical appearance such as growth of tongue, and lips, diastema between the anterior incisors in the lower jaw, marked brownness and thickening of the facial skin, excessive sweating, fatigue, snoring, getting fat (about 10 kg) and severe headache in the last year. After the examination, acromegaly was considered due to the changes in her physical appearance, consequently, blood tests were requested, and she was referred to the endocrinology clinic with the results. The growth hormone level was found as 32 ng/ml and the IGF-1 level was found as 638 ng/ml in the examinations of the patient admitted to the endocrinology outpatient clinic of a private hospital. As a result of the growth hormone being above normal values, the oral glucose tolerance test (OGTT) was planned for the diagnosis of acromegaly from dynamic endocrine tests. After no suppression was observed in the OGTT (GH>40 ng/ml) and magnetic resonance imaging (MRI) for the sellar region revealed pituitary macroadenoma, the patient was diagnosed with acromegaly and referred to the neurosurgery department for surgery. The patient admitted to the neurosurgery outpatient clinic of a university hospital was hospitalized to the neurosurgery clinic on 30.10.2019 for pituitary surgery.

Having no characteristic in her history or family history, the patient has been smoking 20 cigarettes a day for 15 years. The patient stated that she did not have medication she regularly used, but she used analgesics in case of severe headaches. When she was admitted to the clinic, her blood pressure was 120/70 mmHg, pulse was 94/min, body temperature was 37°C, respiratory

rate was 20/min and her vital signs were within the normal range. The patient whose preoperative preparations were completed underwent endoscopic endonasal transsphenoidal pituitary surgery on 31.10.2019. After the surgery, she was followed up in the recovery room of the neurosurgical intensive care unit for approximately four hours and transferred to the neurosurgery clinic. The GH values decreased significantly compared to the preoperative period and the values were found below 1 ng/mlt in the first 24- and 48- hour growth hormone tests of the patient who had no problem during postoperative follow-up. In addition, Sellar MR imaging performed in the first 24 hours showed a total resection of the pituitary macroadenoma. These data are preliminary indications that the patient will be evaluated as surgical remission in endocrine controls to be performed during the first three months postoperatively. The patient was mobilized by removing the foley catheter on the second postoperative day and discharged on the fourth day by planning outpatient controls.

Examination of the Patient with Acromegaly Disease in Line with the “Model of Nursing” by Roper, Logan, and Tierney

The use of the nursing process for the scientific and systematic realization of the care, as well as the use of the nursing process with a model/theory, contributes to the implementation of nursing care with a holistic and humanistic approach and guides the nurse in the provision of individualized care [11–13]. The Roper-Logan-Tierney Model of Nursing is one of the widely used models in nursing education, studies and practice today. The reason for the widespread use of the model is that it is a necessary model for sustaining the life activities of not only the sick individual but also the healthy individual by focusing on preventing or solving the problems related to life activities [14]. The model consists of five elements that are related to each other and also affect each other: life span, activities of living, dependence/independence continuum, factors influencing activities of living and individualizing nursing. This model, which can be integrated into all of the nursing practice areas, enables the recognition of the individual and meeting their needs with the holistic and humanistic approach, which is the basic philosophy of nursing [11]. In this context, individualized care of the patient who is planned to be operated due to acromegaly, a rare disease, is discussed by integrating with the Model of Nursing.

Maintaining a Safe Environment

Maintaining a safe environment for all dimensions is of great importance for the individual to perform his/her life activities in a healthy way [15]. Surgical interventions are conditions that threaten the safety of the individual and affect the individual with all its dimensions and they can bring many problems in terms of providing and maintaining a safe environment. The patient stated that she could not smell for a short time after the operation caused by nasal obstruction due to pituitary surgery although she did not have any sensory problems in the preoperative period. When the patient was interviewed in the outpatient clinic control in the first week postoperatively, it was determined that she started to smell. Due to the pressure effect of the pituitary tumor, the patient stated that she had severe headaches from time to time, especially before the surgery, and that she had headaches that spread to her eyes especially on the 0th and 1st days when the pain was evaluated after the surgery. The patient stated that she had no headache on the day of discharge and outpatient follow-ups.

Communicating

The patient did not have any physical and emotional problems that might prevent communication in the preoperative period. She seemed anxious and tense due to headache in the postoperative period. However, there were no problems that would interfere with the communication activity.

Breathing

Symptoms such as nasal obstruction, rhinorrhea, and epistaxis have been reported in patients after pituitary surgery performed with endoscopic endonasal transsphenoidal approach [16,17]. When the respiratory activity of the patient was evaluated preoperatively and postoperatively, the respiratory rate was monitored as normal, the respiration depth was monitored as superficial and the respiration rhythm was monitored as regular. It was determined that she continued mouth breathing while stating that she could not breathe easily after the operation because of nasal obstruction due to surgical procedure.

Eating and Drinking

Acromegaly is a disease that can lead to the growth of various tissues and organs of the body and weight gain along with over-secretion of growth hormone

affecting the metabolic processes of the body. The patient, who had no dietary restrictions, was 83 kg and 176 cm tall and stated that she gained 10 kilograms in the last year when her eating and drinking activity was diagnosed for the preoperative period. Antiemetic was administered to the patient with the complaint of nausea with the effect of acute pain, anxiety, and anesthesia due to surgical intervention on the 0th postoperative day. There were no nausea complaints in the following periods and she did not encounter any problems affecting her oral nutrition.

Eliminating

Constipation and distension associated with bowel eliminating are among the most common problems in the early postoperative period [18]. The patient stated that her normal bowel habit was once in three days or four days, she usually has a constipation problem and sometimes uses laxatives to perform defecation at home. She stated that her last bowel eliminating was on the day before surgery. It was found that she did not perform defecation when the postoperative bowel eliminating was diagnosed; however, intestinal sounds were normal, there were gas discharge and no abdominal distension on physical examination. Two-day bed rest after surgical intervention, hospital environment, changes in environmental conditions and the drugs used had a negative effect on bowel eliminating. The bowel eliminating was observed in the patient on the day of discharge.

The patient stated that she had no problem with her normal urinary excretion habit, she had micturition 4–5 times a day and she did not wake up for micturition at nights. Urinary excretion was performed with foley catheter on the 0th and 1st postoperative day, and fluid intake and output were monitored. Diabetes insipidus (DI) is one of the complications that can be seen in the early period after pituitary surgery; therefore, monitoring fluid intake and output of the patient, close monitoring if the hourly urine volume continues to be above 250 ml and blood and urine tests for the evaluation of electrolytes are of great importance. The amount of fluid intake for 16 hours on the 0th postoperative day was +3050 ml and the amount of fluid output was –4060 ml in the patient transferred to the service at 14:00 postoperatively. The patient's hourly urine volume and the desire to drink water increased on the first postoperative day. Blood and urine samples were sent for the evaluation of electrolytes. Desmopressin 30 mcg (1*1) was given to the patient in whom DI developed. A decrease in hourly urine volume and desire to drink water was observed during her follow-ups. The amount of fluid intake for 24 hours on the 1st postoperative day was +5300 ml and the amount of fluid output was –6430. No problem

was observed during the follow-ups of the patient in whom transient DI developed. Foley catheter was removed on the second postoperative day.

Personal Cleaning and Dressing

The patient had no problems in performing personal cleaning and dressing activity in the preoperative period. It was determined in the diagnosis of the individual that she dressed in accordance with the season, her clothes looked clean, she had the habit of taking a shower every day, her skin turgor was normal and moist and she had marked darkening and thickening on her facial skin in the last year. The patient had difficulty in performing her personal cleaning in accordance with her habits due to the effects of bed rest and environmental factors after surgical intervention. Intra mouth evaluation of the patient who continued mouth breathing due to postoperative nasal obstruction showed that the oral mucosa was pink in color and dryness of the oral mucosa and lips. The patient performed her oral care on a daily basis.

Controlling Body Temperature

The preoperative and postoperative body temperature of the patient was monitored within the normal range and there were no problems with the control activity of the body temperature.

Mobilising

Mobilising is closely related to the individual's dependence-independence status and directly affects the individual's ability to perform other activities of life [15]. When the patient's mobilising was diagnosed, it was found that she did not have any physical and mental disability affecting movement activity and had an active lifestyle, but did not exercise regularly, especially because she constantly felt tired in the last year. The patient whose mobilising was restricted by being taken into bed rest in the postoperative period was provided to use compression stockings. The patient stated that she felt tired due to the surgery-related pain and changes in sleep patterns. The patient was mobilized on the second postoperative day and no problems developed.

Expression Sexuality

Acromegaly occurring due to over-secretion of growth hormone affects physical and psychological aspects of

sexual life negatively in both men and women. When the sexual activity of the patient was diagnosed, it was determined that she was single and not sexually active, her menstruation cycle was regular and she chose her clothes according to her gender. She stated that she was deeply disturbed by the change in her body image caused by the disease and she did not like herself.

Sleeping

When the patient's sleep activity was diagnosed, it was found that her general sleeping habits were between 6–7 hours/day at night, she did not sleep during the day and used a single pillow while sleeping. She stated that she woke up from time to time due to snoring, had difficulty waking up in the morning and did not feel rested when she woke up especially in the last year. The patient's mother stated that her daughter had severe snoring in the last year. She stated that there were changes in her sleep patterns and quality, that her sleep was constantly interrupted and that she could not sleep enough due to bio-physiological and psychological reasons such as acute headache experienced in the postoperative period, nasal obstruction due to endoscopic endonasal transsphenoidal pituitary surgery, presence in hospital environment and anxiety related to the surgical process as well as environmental reasons such as hospital environment, treatment, and care practices and noise after hospitalization. The patient with impaired sleep activity, which has an important role in the recovery process after surgical intervention, stated that she felt tired.

Working and Planning

When working and planning activity of the patient was diagnosed, she stated that she had been working as an accountant in a company and had usually spent her leisure time traveling with her friends. However, due to the change in her physical appearance, feeling tired and having headaches, she spent most of her time outside the working hours at home with her mother and father. Although the length of hospitalization after pituitary surgery is short, the patient can continue to work after two weeks if no complications develop.

Nursing Care

Data were collected from the individual by taking into consideration the individual's status of performing her life activities in a dependent or independent manner, the factors affecting the performance of activities (bio-physiological, psychological, socio-cultural, economic)

and individuality in life. The collected data were interpreted by grouping and "nursing diagnosis" was determined. For this purpose, nursing diagnoses that NANDA-I determined to create a common language and classify nursing diagnoses were used. The expected patient outcomes for the determined nursing diagnoses were identified and the most accurate and appropriate interventions for the individual were planned, implemented and evaluated.

Acute Pain

Acute pain related to pituitary surgery and detected with a pain-related facial expression, restlessness, and pain score of 6 out of 10.

Outcomes: The individual will state that the pain is reduced or relieved.

Interventions:

- The location, duration, severity, frequency, and quality of the pain were determined,
- The severity of the patient's pain was evaluated with a pain scale,
- Factors that reduce or increase pain were evaluated together with the patient,
- A low-light, suitable temperature, silent and non-disturbing environment was created to facilitate pain relief,
- Appropriate analgesics were administered in cooperation with the physician and their efficacy was evaluated [19–21].

Risk for Infection

The risk of infection detected with a foley catheter.

Outcomes: Signs and symptoms of infection will not be observed in the individual, and preventive measures will be adopted to prevent infection.

Interventions:

- Daily infection risk status was defined,
- The individual and her family were informed about the signs, symptoms, and prevention of infection,
- Attention was paid to the personal hygiene of the individual,
- Care was taken in the cleaning of the environment [19–21].

Risk for Falling

Risk of falling detected by previous pituitary surgery.

Outcomes: As long as the patient stays in the hospital, he/she will comply with preventive measures and no falling will be experienced.

Interventions:

- Behaviors and factors affecting falling risk were determined,
- Environmental factors that could increase the risk of falling were determined,
- The patient and her family were informed about the risk of falling,
- The patient was evaluated for orthostatic hypotension by gradually lifting to her feet before mobilization,
- The patient was informed about the changes in walking style,
- Bed borders and bed lock were used to prevent falling from the bed [19–21].

Nausea

Nausea related to the effect of anesthesia after pituitary surgery and detected by the expression of the patient that he/she has nausea.

Outcomes: The patient will state that nausea is reduced.

Interventions:

- The causes of nausea and how long it can last were explained,
- A safe and clean environment was provided,
- She was recommended to eat small amounts of food and slowly at frequent intervals,
- Antiemetics were administered according to the physician's request [19–21].

Risk for Constipation

Constipation risk detected with environmental changes, pharmacological agent and postoperative immobilization.

Outcomes: The patient will be able to perform intestinal discharge easily.

Interventions:

- The habit of bowel eliminating was evaluated,
- Intestinal sounds were listened and evaluated for distension,
- Fluid intake was increased, and she was provided to consume fibrous foods,
- It was explained that straining should be avoided during defecation as it might cause increased intracranial pressure [19–21].

Risk for Electrolyte Imbalance

Risk of electrolyte imbalance detected with diabetes insipidus after pituitary surgery.

Outcomes: No electrolyte imbalance will be observed.

Interventions:

- The patient's vital signs and neurological status were closely monitored,
- Signs and symptoms of hypernatremia (dry skin, increase in body temperature, weakness, irregular contractions) were monitored,
- The amount of fluid intake and output and serum electrolyte levels were monitored,
- Edema and dehydration findings were observed, and daily weight monitoring was performed [19–21].

Risk for Oral Mucous Membrane Impairment

Risk for oral mucous membrane impairment detected with dryness caused by mouth breathing due to nasal obstruction.

Outcomes: The integrity of the oral mucous membrane will be maintained.

Interventions:

- Daily oral care was performed,
- A suitable moisturizer was used to moisturize the lip and mouth mucosa,
- Oral mucosa was observed in terms of color, brightness, and moisture,
- If necessary, the mouth was rinsed to prevent the mucosa from drying out,
- Information was given about healthy nutrition and fluid intake [19–21].

Fatigue

Fatigue-related to headache and changes in sleep patterns due to pituitary surgery and detected by verbal expression of the patient.

Outcomes: The patient will feel strong and able to perform daily living activities.

Interventions:

- The causes of the individual's fatigue were explained, and she was given the opportunity to explain her feelings about the effects of fatigue,
- A plan was made to carry out basic activities during periods of high energy [19–21].

Social Isolation

Social isolation related to the disease process and detected by the expression of the patient that he/she is moving away from his/her social activities due to the change in his/her physical appearance.

Outcomes: The patient maintain communication with the social environment and continue social activities.

Interventions:

- She was encouraged to talk about her negative emotions and their causes,
- She was encouraged to express her concerns,
- Methods to socialize were determined with the patient [19–21].

Disturbed Body Image

Disturbed body image related to excessive GH secretion due to pituitary tumor and detected with the growth of hands and feet, the coarseness of facial features.

Outcomes: The patient will state his/her feelings and thoughts about himself/herself and recognize his/her positive characteristics and state that he/she accepted his/her changing body image.

Interventions:

- How the individual perceived her physical appearance was evaluated,
- She was given the opportunity to express her feelings and thoughts and was encouraged to ask questions,
- Accurate information was given about changing body functions,
- Sharing feelings with family members and other important individuals and meeting with people with similar experiences were ensured,
- She was encouraged to develop her social relations [19–21].

Disturbed Sleep Pattern

Disturbed sleep pattern related to nasal congestion and headache after surgical intervention and hospital environment, and detected by the expression of the patient that he/she was tired and could not sleep well at night.

Outcomes: The patient will state that the symptoms of insomnia are reduced and that he/she slept more and rested.

Interventions:

- A noiseless and calm environment suitable for sleeping was created,
- Practices aimed at relieving the patient's pain were planned,
- Measures were taken to make it easier for the individual to sleep without using drugs (drinks, reading books, massages, listening to music),
- She was recommended to perform discharge activity before bedtime and to avoid drinks with caffeine and heavy foods [19–21].

Discharge Plan

It was explained that activities that might increase intracranial pressure (heavy lifting, straining, diving, etc.) should be avoided in the first month after surgery, first of all, the properties of the drugs recommended in the postoperative period, that CSF leakage could be experienced in the early period, that she should apply to the health institution when colorless, odorless, clear liquid came from her nose, inappropriate ADH secretion syndrome might develop in the early postoperative period and what were the signs and symptoms of hyponatremia, that she did not need a special diet postoperatively, that she could take showers by using waterproof plasters without wetting the area until the sutures at the incision site are removed due to the fat graft taken from the abdominal region in order to prevent CSF leakage [22]. Detailed information was given to the patient by planning early electrolyte follow-up three days after discharge, sutures removal on the 10th postoperative day and outpatient clinic controls for electrolyte follow-up.

Conclusions

It is thought that the use of the nursing process together with a model in individualized care of the individual who has undergone pituitary surgery due to acromegaly, which is a rare disease, will increase the quality and standards of care and also improve the quality of life of the individual and his/her family. In this study, nursing care was implemented according to the Model of Nursing to meet the needs of the individual with acromegaly disease before and after surgery and the needs of the individual were met.

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