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RESEARCH ARTICLE OPEN ACCESS

APPLICATION OF THE NURSING PROCESS IN THE CARE OF PATIENTS WITH CEREBRAL ANEURYSM: A CASE REPORT

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ABSTRACT

Dilation at the most fragile points of blood vessels are pathological causes and are called Aneurysm. Therefore, most of these cases are usually seen in arteries due to the great impact of the pressure to which they are subjected. this research refers to a case study carried out at the Hospital Getúlio Vargas (HGV), located in the city of Teresina, state of Piauí, Brazil. In this perspective, for three weeks, information was collected from the client, through physical examinations and his medical records. This study followed the steps of the Systematization of Nursing Care (SAE), which includes the following processes in order: Nursing history, nursing diagnosis, planning, implementation and evaluation of results. Therefore, this process was followed faithfully and its rationale was put into practice. The main objective of nursing care both in the pre and postoperative period of a patient with aneurysm is to prevent the onset of complications. Therefore, the nurse must have scientific knowledge about this pathology, know how to perform the neurological examination to identify its main complications and act appropriately.

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INTRODUCTION

Dilation at the most fragile points of blood vessels are pathological causes and are called Aneurysm. Therefore, most of these cases are usually seen in arteries due to the great impact of the pressure to which they are subjected. From this perspective, it is worth noting that this pathology is present in around 3.2% of all individuals in the world, being equivalent both among men and women and in approximately 50 years of age (Turiman a, Turiman b, Edelman, 2014; Pacheco, Seyfftert, Pineda, Guzman, Zuniga, Suarez, Ortega & Varela, 2018). Thus, it is noted that, due to the high number of deaths and morbidity, cases of intracranial aneurysms deserve great relevance, as the results of their ruptures have an immediate impact on the entire homeostasis of the individual, being capable of even generating subarachnoid hemorrhages (Oliva, 2016; Malhotra, Wu, Gandhi & Sanelli, 2018). Thus, about 5% of cerebrovascular accidents are caused by subarachnoid bleeding, originating from ruptured aneurysms. Therefore, this fatality causes approximately 500,000 deaths per year in the human race (Maranhão, Souza, Costa & Vieira, 2018). Therefore, it can be argued that the neurological sequelae in those who resist this disease are present in one third of the affected population, in addition, 30% of those hospitalized die within thirty days after the incident. Thus, Systemic Arterial Hypertension (SAH) is a comorbidity that alone affects 12% of deaths, making it impossible to carry out the proper treatment (Canuto, Nogueira & Telma, 2016). The prevalence of cerebral aneurysms is around 17% to 37% of cases considered unruptured. Thus, one of its peculiarities is the silence in which it develops, being often asymptomatic. From this perspective, the diagnosis is largely made by chance, during routine examinations, non-intrinsic pathology complaints, and

neurological examinations (Greenberg, 2016; Toth & Cerejo, 2018; Ajiboye, Chalouhi, Starke, Zanaty & Bell, 2015). Thus, it can be inferred that over the years, the advancement of technology in which less invasive diagnoses are increasingly possible and with the high number of years of life, earlier detection, even if accidentally, has become something more frequent. The origin of this disease is seen as multifactorial, in addition to non-modifiable cases such as genetic predisposition, hormonal and hemodynamic factors, Ehlers-Danlos syndrome and polycystic kidneys, there are also modifiable cases such as the prevention of hypertension, use of contraceptives, smoking, hyperlipidemia and the control of Diabetes Mellitus. Thus, these conditions are fundamental for the development of aneurysms (Cho, Lee, Ryu & Suh, 2018; Sociedade Brasileira de Neurocirurgia, 2018; Melo, 2008). Although non-modifiable conditions are immutable factors, knowledge is needed so that there is greater surveillance in risk groups and, thus, prevent complications/sequels through preventive and control actions. In this perspective, the knowledge that nurses experience is seen as something complex and that needs foundation. Thus, the nursing process must be developed with the objective of promoting, maintaining and restoring the health of individuals who need it. Thus, the Systematization of Nursing Care (SAE) becomes fundamental for the planning, control and execution of effective health actions (Gonçalves, Nery, Nogueira & Bonfim, 2007). Thus, the objective of this research was to report a case study of cerebral aneurysm, experienced by two students of the Nursing course at the State University of Piauí (UESPI), in their curricular internships at a state reference hospital. And to prepare a care plan focused on this case, highlighting the nursing diagnoses, the nursing prescriptions and the expected results.

METHODOLOGY

Thus, this research refers to a case study carried out at the Hospital Getúlio Vargas (HGV), located in the city of Teresina, stateof Piauí, Brazil. In this perspective, for three weeks, information was collected from the client, through physical examinations and his medical records. For the physical examinations, the following were used: eye flashlight, stethoscope, sphygmomanometer, thermometer and oximeter. Thus, after collection, the data were transcribed to an A4 sheet and later transferred to the digital medium (Word). This study followed the steps of the Systematization of Nursing Care (SAE), which includes the following processes in order: Nursing history, nursing diagnosis, planning, implementation and evaluation of results. Therefore, this process was faithfully followed and its rationale was put into practice (Gonçalves, Nery, Nogueira & Bonfim, 2007).

RESULTS

Nursing History: M.G.P., female, 66 years old, evangelical, from Ribeiro Gonçalves-PI, housewife, complete elementary school, no barriers to communication, no deficits, no mental disorder, known to be hypertensive, denies allergies, uses captopril twice a day. He began to have seizures 7 days before admission, in addition to headache, loss of consciousness and neck stiffness. A computed tomography of the skull was performed, showing subarachnoid hemorrhage. Admitted (01/29/2022 at 1:19 pm) at the neurology clinic with diagnosis of cerebral aneurysm with wide neck, for cerebral angiography procedure. Conscious, oriented, calm. Low visual acuity, dental flaws. Afebrile Eupneic, AP-MV present, no adventitious sounds, no O2 supply. High blood pressure (150/80mmHg). Normocardial (94 bpm, AC-BNF2TRR). Normosaturating (97%). Tense abdomen, accepts diet partially (PO), constipated. Walking with assistance. Intact and normocolored skin. Spontaneous diuresis present. Satisfactory sleep. Painless. Venous access in the MSE. multiparous. Never had any surgery. Fall risk. SUS time of 5 days.

Nursing evolution: 01/31/2022 at 15:27: Patient undergoing treatment for cerebral aneurysm, has systemic arterial hypertension (SAH) as a comorbidity. continues on the 2nd Day of Hospitalization (DIH) conscious, oriented, sleepy. Intact Scalp, isochoric and photoreactive pupils. Absence of pain in the paranasal sinuses. Incomplete dentition. Absence of palpable lymph nodes in the head and neck. She reports pain in the frontal region of the skull and in the left Temporomandibular Joint (TMJ). Symmetrical Chest, Pulmonary Auscultation (AP): Vesicular Murmurs Present (MV+), No Adventitious Sounds (SRA). Cardiac Auscultation (AC): Normophonetic Sounds in 2 Rhythmic Beats (BNF2TRR). Symmetrical abdomen, Airborne Sounds (RHA): + (12/min), pain on palpation in the right mesogastrium, tympanic. Inadequate food, refers to having no appetite. Diuresis present, Evacuations absent for 8 days According to Information Collected (SIC). Walk with assistance. Peripheral Venous Access (AVP) in Right Upper Limb (MSD) (29/01/22), without phlogistic signs. No edema. Excessive sleep. Refers to generalized weakness. Companion informs that the patient woke up disoriented around 6 am. 01/02/2022 at 15:00: Patient undergoing treatment for cerebral aneurysm, has SAH as comorbidity. Evolves conscious, oriented. Isochoric, photoreactive pupils. Pain on palpation in the left TMJ. Absence of palpable lymph nodes in the head and neck. Symmetrical chest. Tachypneic (23irpm), AP: MV+, SRA. Normocardia (100bpm), AC: BNF2TRR. Low saturation (93%). Afebrile (37.1°C). Blood pressure 140/70 mmHg. Symmetrical, globose abdomen, RHA+ (7/min), rigid, pain on palpation in the right hypochondrium, submassive in the left hypochondrium, left flank and left inguinal. Unsatisfactory Oral (PO) feeding. Diuresis present. Evacuations absent since 01/23/22 SIC. Without AVP and central. Edema in MIE (+/++++). Complains of weakness. 02/07/2022 at 14:39: Patient undergoing treatment for cerebral aneurysm, has hypertension as comorbidity. Evolves conscious, oriented, sleepy. Isochoric and photoreactive pupils. Absence of palpable lymph nodes in the head and neck. Symmetrical chest. Eupneic (17 irpm), AP: MV+, SRA. Normocardial (95 bpm), AC: BNF2TRR. Symmetrical abdomen, globose, RHA+ (10/min), painless on palpation, tympanic. Satisfactory OR diet. Diuresis present. Evacuations absent for 13 days (SIC). Walk with assistance. AVP on MSD (01/02/22). Satisfactory sleep. She reports discomfort in the frontal region of the skull and in the Lower Limbs (LL). Companion informs that the patient woke up disoriented around 6 am. Thus, in table 1, the diagnoses, interventions and expected results are described after the application of the Systematization of Nursing Care (SNC). With this, in table 2, the drugs, dose, route of administration, recommendations and necessary care in the face of this patient's routine are exposed.

Discharge plan/guidelines: Maintain treatment with medication prescribed by the doctor, paying attention to the schedules and side effects of each one as mentioned above. Use the head of the bed elevated. Perform blood pressure control at least once a week. Keep a balanced diet. To exercise. Avoid accumulation of objects on the floor, provide night lighting next to the bed. Guide the family member to help during the moments of hygiene and help with walking. In addition to monitoring and identifying signs that may indicate a stroke such as: crooked mouth, crooked smile, difficulty lifting one of the arms or keeping them raised, sudden lack of understanding of language, not being able to repeat any sentence. In one of these signs, refer to the emergency room.

DISCUSSION

There is a greater predominance of aneurysms in female patients, with a higher occurrence of rupture of these in the ages between 41 and 51 years. (Araújo, Sousa, Muniz, Oliveira, Neto & Sousa, 2014). In a study by Greenberg (2013), vasospasm was evidenced in 06 cases, of which 03 cases had motor deficit, 04 had altered consciousness evidenced by mental confusion and 01 had speech deficit evidenced by aphasia. This complication is a late ischemic neurological deficit after SAH that is characterized, from a clinical point of view, by confusion or decreased level of consciousness. It can also be manifested by focal neurological deficit, causing speech changes or motor deficit. In this sense, some risk factors have also been the reason for the increased risk of multiple aneurysms, such as smoking, high blood pressure, family history, being female and post-menopausal.

Table 1. Diagnoses, interventions and expected results. Teresina-PI (2022)

1- Diagnostics	Imbalanced nutrition: less than body requirements related to insufficient food intake characterized by food aversion
1- Interventions	Weigh the patient daily at the same time; explain to the patient the importance of adequate nutrition, negotiate with the patient the intake targets at each meal
1- Expected Results	Appetite; adherence behavior; acceptance behavior: prescribed diet
2- Diagnostics	Constipation related to poor eating habits and insufficient fiber intake, characterized by reduced stool frequency
2- Interventions	identify the factors that may cause or contribute; assess the drug profile; advise on a high-fiber diet
2- Expected Results	symptom control; nutritional status: food and fluid intake; intestinal elimination
3- Diagnostics	Chronic stroke-related confusion defined by temporary change in cognitive function
3- Interventions	Monitor the occurrence of confusion, changes in mental status, complaints of dizziness, syncope; monitor vital signs; analyze PIC waveforms
3- Expected Results	Decision making; cognitive orientation; memory
4- Diagnostics	Risk of infection associated with invasive procedure
4- Interventions	wearing gloves, teaching the patient and family how to avoid infections; wash hands before and after each patient care activity
4- Expected Results	self-care: hygiene; risk control, pre-procedure preparation
5- Diagnostics	Fall risk associated with pharmaceutical agent
5- Interventions	suggest safe footwear; identify environmental characteristics capable of increasing the potential for falls; assist the unsteady person in walking
5- Expected Results	Risk detection; safe travel

Sources: Authors, 2022.

Table 2. Medications in use. Teresina-PI 2022

Medication	Dose	route of administration	scheduling	Recommendation	care
Dipyrone 1g/2ml amp	1 amp	intravenous	4/4h	pain and fever	Check for allergy, warn dyspnea, nausea, vomiting
sodium phenytoin 50 mg/ml amp 5ml	1 amp	intravenous	8/8h	convulsive crisis	Cardiac monitoring and observation during administration, warn - nausea and vomiting
nimodipine 30mg	2 comp	oral route	4/4h	Prevention and treatment of ischemic neurological impairments	Concomitant use with antiepileptics (phenytoin) is not recommended.
losartan potassium 50mg	1 comp	oral route	12/12h	antihypertensive	Monitor blood pressure, electrolytes, blood glucose, warn - dizziness and drowsiness
simvastatin 40mg	1 comp	oral route	Night	hyperlipidemia	Warn if myalgia, arthralgia, constipation and excessive flatulence are present
omeprazole 40mg	1 amp	intravenous	once a day	Gastroesophageal reflux, esophagitis and gastritis.	guide to take on an empty stomach
hydralazine 50mg comp	1 comp	oral route	8/8h	antihypertensive	Monitor blood pressure, heart rate

Sources: Authors, 2022.

(Connolly, Rabinstein, Carhuapoma, Derdeyn, Dion, Higashida, Hoh, Kirkness, Naidech, Ogilvy, Patel, Thompson & Vespa, 2012). In addition to hyperlipidemia, diabetes mellitus, hemodynamic factors, Ehlers-Danlos syndrome, and polycystic kidneys, all these factors contribute to aneurysm formation. (Brazilian Society of Neurosurgery, 2018; García, Gutiérrez, Guerrero, Chima & Sánchez, 2015). However, according to Ribas (2005), the findings regarding systemic arterial hypertension (SAH) and alcoholism are controversial and do not characterize these conditions as frankly favorable to the occurrence of aneurysm rupture. With the increase in life expectancy and the advancement of non-invasive and diversified technology, the detection and accuracy of incidental brain aneurysms has become more common. Studies indicate that more than 75% of incidental aneurysms are of small size and saccular morphology. (Silva & Oliveira, 2017; Etminan & Rinkel, 2016). Despite these investigation tools, studies on the prevalence of these aneurysms are still scarce. (Cho, Lee, Ryu & Suh, 2018). Although it is not possible to act directly on these non-modifiable risk factors, knowledge is important in order to improve performance in risk groups, implement screening programs that contribute to reducing mortality and associated complications, as well as Brain aneurysm management techniques in predicting the prognosis of patients. (Galvao, Lima & Haas, 2020). It can be seen, then, how much this current case of aneurysm reaffirms the results of several studies. From the female sex being the one with the highest incidence, to evidence of altered consciousness, risk factors, risk for multiple aneurysms, relationship with hypertension, and rehabilitation.

CONCLUSION

The main objective of nursing care both in the pre and postoperative period of a patient with aneurysm is to prevent the onset of complications. Therefore, the nurse must have scientific knowledge about this pathology, know how to perform the neurological examination to identify its main complications and act appropriately. All the knowledge acquired was of great value, from the experience with the patient to the study of his case, and prescription of his care. Not to mention practical knowledge of the clinical manifestations of an aneurysm. This knowledge is necessary on the part of nursing professionals, so that they can provide quality care, ranging from prevention to care aimed at those who are already more seriously ill. From this perspective, it is worth noting that, for further research, an approach to the sequelae that a ruptured aneurysm can provide lacks a specialized nursing process and is rarely discussed in the literature. Thus, this approach is seen as extremely important for future studies.

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