


Emergency Nursing Care of Ineffective Breathing Patterns in Epilepsy Patients : Case Study

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Article Info	ABSTRACT
<p>Keywords: NCD Emergency Nursing Care, Ineffective Breathing Patterns Neurological Disorders</p>	<p>Epilepsy is a non-communicable disease that attacks the brain due to excessive electrical discharge characterized by seizures of all or part of the body accompanied by loss of consciousness. In Indonesia, epilepsy is commonly called ayan or sawan. The number of epilepsy sufferers worldwide is around 50 million and the number in Indonesia is around 1.5-2.4 million. The highest incidence of epilepsy is in those over 50 years of age, which is 28.4 per 100,000 people. The highest mortality rate is in the elderly. The purpose of this study was to determine emergency nursing care for Mr. A with a medical diagnosis of epilepsy in the emergency room. The method used is the case study method by carrying out nursing care including assessment, diagnosis, intervention, implementation and evaluation. The study was conducted in the emergency room of Urip Sumoharjo Hospital on Mr. A on June 10, 2024. The results of the study found a nursing diagnosis of ineffective breathing patterns related to neurological disorders (seizure disorders) characterized by dyspnea. Interventions carried out for 1x24 hours, the expectation of breathing patterns improved with the criteria for decreasing dyspnea results. Conclusion, responsive nursing care for epilepsy patients in the emergency room can prevent recurrent seizures, reduce morbidity and mortality due to epilepsy.</p>
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INTRODUCTION

Epilepsy is a non-communicable disease that attacks the brain due to excessive electrical discharge characterized by seizures of all or part of the body accompanied by loss of consciousness (WHO, 2024). The definition of an epileptic seizure is if the seizure occurs at least twice, if the seizure only occurs once then it cannot be said to be an epileptic seizure. As many as 10% of people who have had seizures will progress to epileptic seizures (Falco-walter, 2020). According to the International League Against Epilepsy (ILAE) in 1981, epileptic seizures based on etiology are divided into 3, namely idiopathic epilepsy, symptomatic epilepsy and cryptogenic epilepsy (Kemenkes RI, 2017). Idiopathic epilepsy is epilepsy whose exact cause is unknown but is thought to be related to genetics. Symptomatic epilepsy is epilepsy that occurs in association with abnormalities in brain structure and neurological deficiencies. Cryptogenic epilepsy is epilepsy that occurs due to certain symptomatic conditions but the exact etiology has not been determined. The etiology of

epilepsy based on age is divided into 2, namely the etiology of epilepsy in children and adults. The etiology of epilepsy in children is due to brain structure problems (25%), metabolism (1%), genetics (32%), infection (2%) and unknown (40%). The etiology of epilepsy in adults is due to brain structure problems (27%), genetics (26%), infection (6%) and unknown (41%) (Falco-walter, 2020). Epileptic seizures in children are most often caused by injuries during childbirth, malformations of brain development and genetics. Epileptic seizures in adults and the elderly are due to meningitis, brain tumors and brain trauma due to injury. Primary neurodegenerative factors are one of the causes of epileptic seizures in the elderly. Epileptic seizures are divided into 4 phases. The prodromal phase is the initial phase that occurs several hours or days before a seizure occurs which is characterized by changes in mood or behavior. The aura phase is the patient's premonition before a seizure occurs involving the five senses. The ictal phase is the seizure phase. The final phase, namely the postictal phase, is the patient's sensitive feelings after a seizure occurs (Belleza, 2024).

The number of epilepsy sufferers worldwide is around 50 million and the number in Indonesia is around 1.5-2.4 million (Grehenson, 2021). The number of epilepsy sufferers increases by 50.4-84.7 per 100,000 people each year (Falco-walter, 2020). Seizures that will progress to epileptic seizures are around 2-3% of cases (Kemenkes RI, 2022a). The age range of children who most often experience epilepsy is 5-9 years and in adults at the age of 80 years. The highest incidence of epilepsy is in those over 50 years of age, 28.4 per 100,000 people. The highest mortality rate is in the elderly (Prasetyo & Prasetyo, 2018). The incidence of epilepsy in the elderly is highest in men 3,400 per 100,000 (3.4%) and women 2,800 per 100,000 (2.8%) (Belleza, 2024).

The most effective management for epilepsy sufferers is by administering anticonvulsant therapy which can control the incidence of epileptic seizures by 70% (Haryanti et al., 2022). Emergency management of epilepsy patients is to maintain the airway, circulation, administer anticonvulsant drugs, install an intravenous line, and administer oxygen if needed (Prasetyo & Prasetyo, 2018). Supporting examinations for epilepsy by conducting electroencephalography (EEG) and imaging using magnetic resonance imaging (MRI) (Menteri Kesehatan RI, 2017). Treatment for epilepsy patients is called antiepileptic drugs (AEDs). The aim of providing epilepsy treatment is so that patients can live normally and have a maximum quality of life without consuming AEDs and without having seizures (Fitriyani et al., 2023). AEDs are given after it is confirmed that there has been a seizure more than once, the results of the examination show that there is a neurological or brain disorder, and there is a family with the same history. AEDs are given starting from a low dose and will be increased if there is no change. If for 10 years there is no seizure and for 5 years not consuming AEDs, the EEG results are normal, epilepsy is considered cured (Falco-walter, 2020; Fitriyani et al., 2023). Discontinuation of AEDs administration must be done gradually.

Based on the description above, it shows the role of a nurse as a nursing care provider is expected to be able to provide fast and appropriate first aid for epilepsy patients. Fast and appropriate treatment will have a very significant impact on the patient's life expectancy. So that it can reduce the risk of recurrent seizures and the provision of AEDs only to the first line.

METHODS

The design of this study is a case study. The target of the study was Mr. A with a diagnosis of epilepsy who underwent treatment in the emergency room on June 10, 2024. The instrument used was the nursing care assessment format. Data collection was carried out based on the results of interviews, observations, physical examinations, and documentation studies. The stages of this research began with determining the topic of discussion, followed by formulating the background, introduction (including theoretical framework, objectives, and research methods), discussion, conclusions, and recommendations. Nursing care was conducted based on the five stages of the nursing process, including assessment, diagnosis, planning, implementation, and evaluation. The data analysis used was descriptive analytical, where the collected data were processed and interpreted to describe the emergency nursing care provided to Mr. A. The results were then compared with existing theories and relevant literature to draw conclusions regarding the effectiveness of nursing interventions in managing epilepsy-related ineffective breathing patterns.

RESULTS AND DISCUSSION

Patient Mr. A came to the Urip Sumoharjo Emergency Room accompanied by his family on June 10, 2024 at 09.35 WIB with complaints of seizures for approximately 2 minutes, whole body seizures, nausea, vomiting and fever. The family said that Mr. A had just returned home after being treated at Urip Sumoharjo Hospital on June 8, 2024 due to epileptic seizures. Epilepsy occurred for the first time 3 years ago. Based on the results of the assessment in the Emergency Room, airway data showed snoring sounds. Breathing data showed no additional breath sounds. Circulation data showed pale acral color, acral felt warm. Disability data showed GCS 15 and no problems. The results of observations of vital signs were blood pressure 130/70 mmHg, pulse 105x/minute, respiration 23x/minute, temperature 38°C, SPO2 79%, consciousness. Nursing diagnoses raised based on subjective and objective data are ineffective breathing patterns related to neurological disorders (seizure disorders) characterized by dyspnea (D.0005) (PPNI, 2017). Interventions carried out based on the Indonesian nursing intervention standards (SIKI) for the diagnosis of ineffective breathing patterns are to carry out airway management (I.01011) (PPNI, 2018a). Airway management interventions include observation (monitoring additional breath sounds), therapeutic (positioning in semi-Fowler or Fowler, providing oxygenation), and collaboration with drug administration. The outcome in epilepsy patients with the above nursing diagnoses is the expectation of improved breathing patterns with the outcome criteria of decreased dyspnea (L.01004) (PPNI 2018).

Emergency care for epilepsy patients aims to reduce mortality and morbidity. The first-line AED is benzodiazepam, the second line is fosphenytoin, valproic acid and levetiracetam, and the third line is an anesthetic agent. Epilepsy assessment begins with the administration of AED, vital signs (blood pressure, temperature, pulse), blood tests, glucose administration, review of medical history, review of physical examination related to trauma, blood gas analysis (ABG), lumbar puncture, ECG and urine samples (Prasetyo & Prasetyo, 2018).

In the case of Mr. A, the seizure data obtained was not the first seizure but had occurred since 3 years ago. Mr. A was admitted to the hospital 2 days ago with a seizure. The seizure lasted approximately 2 minutes and there were seizures throughout the body. So the seizure was called an epileptic seizure because it had occurred more than once. During the seizure, Mr. A experienced a decrease in consciousness and after regaining consciousness, Mr. A felt weak. Examination of the airway, breathing, circulation and disability in Mr. A showed a snoring sound, SPO2 79% and blood pressure 130/70 mmHg. The snoring sound occurred due to the seizure that occurred. Seizures cause narrowing of the airways. Narrowing of the airways can affect oxygen levels in hemoglobin indicated by an SPO2 value of 79%. The normal SPO2 value is 96 - 100%. Research from Siti Fadilah et al (2020) found a relationship between blood pressure and SPO2 values (Fadlilah et al., 2020). Low SPO2 values result in low oxygen being carried to the brain and heart. This causes the heart to work harder to meet the oxygen intake to the brain, resulting in an increase in blood pressure. This is strong evidence to raise a nursing diagnosis of ineffective breathing patterns. Ineffective breathing patterns are defined as inspiration and/or expiration that do not provide adequate ventilation (PPNI, 2017). The appropriate intervention for this nursing diagnosis is airway management by performing observational actions (monitoring additional breath sounds), therapeutic (positioning in semi-Fowler or Fowler, providing oxygenation), and collaboration with medication administration (PPNI, 2018a).

Observation Action (Additional Breath Sound Monitor). During the assessment, Mr. A had a snoring sound and Mr. A admitted to being weak due to seizures. The action taken by the nurse in the emergency room was to monitor Mr. A's breathing pattern in the hope that there would be no more seizures that would worsen snoring. After therapy, Mr. A's additional breath sounds (snoring) decreased. Research by Kuo Liang Chiang, et al. (2018) states that some epilepsy drugs can reduce or prevent the occurrence of asthma (Chiang et al., 2018). This shows that epilepsy patients are at risk of experiencing respiratory tract disorders. Other studies show that snoring is one of the signs of obstructive sleep apnea (OSA) which can cause decreased blood oxygen levels (SPO2) (Akhter et al. 2018; Wali et al. 2020).

Therapeutic Action (Semi Fowler or Fowler Position and Oxygen Administration). Mr. A experiences shortness of breath so one way to reduce shortness of breath due to seizures is to position him in a semi-fowler or fowler position. One of the goals of the semi-fowler position is to reduce shortness of breath and the goal of the fowler position is to increase oxygen inspiration and expiration (Kemenkes RI, 2022b). The semi-fowler position is a sitting position with an angle of 30°-45° and fowler is a sitting position with an angle of 90°. The result of providing the semi-fowler and fowler positions is that Mr. A's shortness of breath is reduced. Another assessment of Mr. A's SPO2 value is 79% so that to increase oxygen intake to the brain, oxygen is given via a nasal cannula of 2-6 liters. The SPO2 value while in the emergency unit increased to 85%. This is in line with the research results of Denny Setiadi et al. (2022) which stated that there was an increase in SPO2 values in patients using nasal cannulas (Setiadi et al., 2022).

Collaboration (Drug Administration). Mr. A has experienced repeated seizures, but the drugs given are still in the first-line AED group. Collaborative actions given to Mr. A include

administering amlodipine 1x5 mg to lower blood pressure. After being given amlodipine for 1x24 hours, Mr. A's blood pressure decreased to 120/80 mmHg. Other collaborative actions include administering folic acid 2x1. The side effect of consuming AEDs for a long period of time is a deficiency of folic acid (Saefulloh et al., 2019). The results of a study by Ivana Rahayu et al. (2018), folic acid was given to Mr. A with the aim of replacing the lack of B12 in the body as a side effect of AEDs (Latuasan et al., 2018). Furthermore, to prevent seizures by administering phenytoin 3 x 100 mg, neurodex 1x1, citicoline injection 2 x 500 mg, mecobolamine injection 2x500 mg. This is in line with research conducted by Meita Nurfitriani (2019) which shows that the impact of first-generation AEDs such as phenytoin can reduce neuroactivity in epilepsy patients, this shows that phenytoin can prevent recurrent seizures (Saefulloh et al. 2019; Tedyanto, Chandra, and Adam 2020).

Nursing evaluation obtained after implementing 1x24-hour nursing care is decreased dyspnea. The evaluation results are in the form of SOAP, namely subjective, objective, analysis and planning (PPNI Jaktim, 2020). Subjective data (S) Mr. A said he was still weak, objective data (O) additional breath sounds (snoring) decreased, SPO2 value 85%, blood pressure 120/80 mmHg, analysis (A) the problem was resolved, planning (P) intervention was continued by providing AEDs and administering nasal cannula..

CONCLUSION

Based on the nursing care performed on Mr. A, a nursing diagnosis of ineffective breathing patterns related to neurological disorders (seizure disorders) was obtained, characterized by dyspnea. Emergency epilepsy measures on Mr. A with subjective and objective data obtained refer to ineffective breathing patterns related to neurological disorders (seizure disorders) characterized by dyspnea. Emergency measures on Mr. A in the emergency room have been carried out in accordance with existing procedures. So that after nursing actions were carried out, the SPO2 value increased to 85% and blood pressure decreased to 120/80 mmHg. Thus, responsive nursing care in the emergency room can prevent recurrent seizures, reduce morbidity and mortality due to epilepsy. This study only focuses on nursing care that occurs to Mr. A with actual nursing diagnoses only, not discussing nursing diagnoses of risk and health promotion. So it is expected that this nursing care can be a reference for nursing students and nurses in providing nursing care in the emergency room for epilepsy patients, especially with a diagnosis of ineffective breathing patterns, but do not forget to review the risk diagnosis and health promotion as a comprehensive effort to improve the health of epilepsy patients.

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