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Nursing Care for Patients with Pleural Effusion in the Pulmonary Inpatient Room of Raden Mattaher Hospital, Jambi City

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Abstract

Pleural effusion occurs when there is excessive accumulation of pleural fluid in the pleural cavity resulting in transudation and exudation. The prevalence of pleural effusion disease in Indonesia reaches 2.7%. There is data from the last five months, namely that 35 pleural effusion patients received treatment. The impact that will arise if pleural effusion is not treated is lung scarring, pneumothorax, empyema (accumulation of pus in the pleural cavity) and sepsis (blood infection) which can cause death. Pleural effusion treatment is given with the aim of preventing fluid buildup by relieving symptoms such as discomfort, shortness of breath, and other respiratory diseases. The design of this scientific paper uses a case report design with a nursing process approach. The subjects in this study were 2 patients diagnosed with pleural effusion. Data was conducted using descriptive analysis by looking at the patient's development status from the first to the last day. Nursing care for patients with pleural effusion obtained results that there were four nursing problems, namely ineffective breathing patterns, acute pain, activity intolerance, and sleep pattern disorders. Based on the results of nursing care that has been given to patients with pleural effusion has been carried out in accordance with nursing interventions so that the four nursing problems that arise can be partially resolved.

Keywords: *Nursing Care, Pleural Effusion, Case Study*

Introduction

In the medical world, pleural effusion is a condition where there is a buildup of fluid in the pleural cavity that causes shortness of breath in patients. Pleural effusion can be caused by various factors, such as infection, heart disease, or cancer. Patients with pleural effusion require comprehensive nursing care to ensure their condition is stabilized and to speed up the healing process. Pleural effusion occurs when excessive accumulation of pleural fluid in the pleural cavity results in transudation and exudation. The fluid that forms by displacing lung tissue, can push the lungs to the mid-chest. The excess fluid can be caused by obstruction of lymphatic drainage from the pleural cavity, very high peripheral pressure and pulmonary capillary pressure causing excessive fluid transudation into the pleural cavity caused by heart failure, plasma colloid osmotic

pressure that is greatly decreased allowing fluid transudation, and pulmonary infection or any other cause of inflammation on the surface of the pleural cavity. [1, 2]

Patients with pleural effusion were mostly found in the age group of 44 - 49 years and above, and were more common in men (54.7%) than women (45.3%). The high incidence of pleural effusion is caused by pulmonary TB and lung tumors. The prevalence of pleural effusion disease in Indonesia reached 2.7%. In the United States, there are 1.5 million cases of pleural effusion from various causes, including pneumonia, heart failure, pulmonary embolism, and cancer.[3, 4] In Indonesia, there is no nationally published data on the prevalence of pleural effusion. However, there is data from the last five months which shows that 35 patients with pleural effusion received treatment at RSUD. Raden Mattaher from January to May of 2024.

According to research conducted by Smith et al. in the journal "Journal of Nursing Care," patients with pleural effusions often experience significant breathing difficulties and chest pain. This shows the importance of the role of nurses in providing appropriate and effective care to overcome the symptoms experienced by patients. [5, 6]

The late effects of pleural effusions are influenced by the amount of pleural fluid. Benign effusions are treatable but different from pleural effusions caused by malignancy. If the pleural effusion cannot cause any symptoms then drainage cannot always be indicated unless there is an infection, and if the pleural effusion is caused by malignancy then a drain is performed so that it cannot cause shortness of breath and even empyema.[7, 8]

Common nursing problems in patients with pleural effusion are ineffective breathing patterns associated with decreased lung expansion influenced by infection and fluid buildup. Gas exchange disorders occur due to inadequate lung expansion associated with fluid buildup which causes a decrease in blood oxygen levels.[3, 9]

Pleural effusion treatment aims to prevent fluid buildup by relieving symptoms such as discomfort, shortness of breath, and other respiratory ailments.[10, 11] Treatment of pleural effusion by including the implementation of therapy, namely thoracocentesis. pleural drainage, surgery to remove fluid, administration of antibiotics, installation of pleural drainage, water including seal, drainage (WSD), provision of a high calorie diet.[1, 12]

Based on the results of the data above, it can be concluded that nursing care in patients with pleural effusion requires a holistic and evidence-based approach. The purpose of this research is to find out how nursing care for patients with pleural effusion. The role of nurses in providing appropriate and effective care is very important to ensure optimal patient quality of life. Therefore, further research in this field needs to be done to improve nurses' understanding and skills in managing patients with pleural effusion.

Methods

The research method in this scientific paper design uses a case report design with a nursing process approach. The subjects in this study were patients with a diagnosis of pleural effusion, namely 2 people who were treated at the RSUD. Raden Mattaher Jambi City. The research process began on May 29 to June 03, 2024.

Results

The patient's name is Mr. S, male gender aged 65 years, married marital status, Muslim religion, language used Indonesian, occupation as a traveling sausage trader who resides in Muaro Jambi. Date of admission May 29, 2024 at 06.00, with EM number 1053xxx with a medical diagnosis of pleural effusion. The patient came to the hospital with his wife Mrs. S.

The patient came with complaints of shortness of breath, coughing with phlegm since 1 week, there was chest pain due to coughing. At the time of the assessment on May 29, 2024 the patient complained of shortness of breath, the patient also complained of coughing up phlegm, then the patient had malignant cancer on the left hip since 1 year ago and had been surgically removed but when he was re-examined the cancer began to reappear. The patient is attached to water sealed drainage (WSD) with a red liquid consistency, there are red clots, and there is no distinctive odor.

History of previous illnesses, the patient said he had a history of hemorrhoid disease since 5 years ago, treatment had been done but it came back because the patient liked spicy food, his family said that if he did not eat chili sauce the patient had little appetite for food and ate only a little. The patient was also treated for cancer at Dr. Bratanata Jambi Hospital since 1 year ago. The

patient has also had cancer removal 6 months ago and at the time of control again to the hospital the cancer reappeared in a different location. The patient has no history of food or drug allergies.

During the examination, Mr. S's general condition appeared weak, compos mentis consciousness, GCS 15 (E4, M6, V5) obtained the results of vital signs examination: BP: 109/76 mmhg, N: 89x/m, RR: 27x/m, S: 36C, SpO2: 98%, TB: 160cm, and BW: 48kg. There was an abnormal supporting examination, namely the result of Sodium (Na +) 131 (135-148 mmol / l) and the results of a thorax examination of cardiomegaly. Mr. S was given nursing care for three days and on the third day the patient's condition worsened.

The patient named Mrs. E, female gender aged 40 years, married marital status, Muslim religion, language used Indonesian, work as a housewife who resides at Jl. Kepodang IX Rt. 23 Jelutung sub-district. Date of admission June 01, 2024 at 09.30, with EM number 1054xxx with a medical diagnosis of dyspnea ec. Susp. pleural effusion dextra dd. Pulmonary TB + cardiomegaly. The patient came to the hospital with his son Mrs. I.

The patient came with complaints of shortness of breath since 2 days, the patient also complained of coughing since 5 months ago, and said pain in the right back. At the time of the assessment on June 01, 2024 the patient complained of shortness of breath, the patient also complained of coughing but no phlegm, then pain in the right back, where the pain felt sore, with a pain scale of 6, the pain was felt continuously. In addition, the patient also said that it was difficult to sleep, it had been 2 days since the patient could not sleep, the patient could not sleep on his back because of his painful back and slept while sitting with pillows piled high in front of him.

Previous medical history, the patient said he had a history of low blood pressure and hepatitis derived from his mother. The patient before entering Raden Mattaher Hospital, the patient came to the emergency room of Abdul Manap Hospital then the patient experienced the same complaints, namely shortness of breath, coughing, and pain in the back then the patient was told to be hospitalized at Abdul Manap Hospital but the patient and family refused because after being given medicine the patient was better and asked to go home, and then after returning home the patient again experienced shortness of breath and was then immediately taken to the Raden Mattaher Hospital. Raden Mattaher. The patient has no history of food or drug allergies.

In the assessment of activity and rest, the patient said that his sleep was disturbed, since 2 days the patient only slept intermittently for about 30 minutes and then woke up again because of tightness and pain in his back. For ADL when hospitalized, his daily activities are assisted by his son such as eating, bathing, toileting, and changing clothes.

During the examination, Mrs. E's general condition appeared weak, compos mentis consciousness, GCS 15 (E4, M6, V5) obtained the results of vital signs examination: BP: 104/76 mmhg, N: 106x/m, RR: 28x/m, S: 35.2C, SpO2: 96%, TB: 155cm, and BW: 42kg. There were abnormal supporting examinations, namely SGOT 165 (PR < 32 U/I), SGPT 98 (PR < 31 U/I), and HBsAg (Rapid) results were reactive.

Discussion

Assessment

The results of the assessment conducted on June 29, 2024 obtained data: Mr.S complains of shortness of breath, the patient also complains of coughing up phlegm, then the patient has malignant cancer on the left hip since 1 year ago and has been surgically removed but when he is re-examined the cancer starts to reappear. The patient is attached to water sealed drainage (WSD) with a red liquid consistency, there are red clots, and there is no distinctive odor. then the patient's condition worsened on the second day of treatment.

The results of the assessment conducted on June 01, 2024 obtained data: Mrs. E complained of shortness of breath for 2 days, the patient also complained of coughing since 5 months ago, there was no sputum (-), there was no additional breath sound (-), the patient complained of pain in the right back, pain felt sore, with a scale of 6, and continuous pain. Since the illness, Mrs. E could not sleep due to the tightness she felt and was restless. The patient also could not do her usual activities because she was easily tired and her body felt weak, during the illness the patient's activities were assisted by family and nurses. Mrs. E was diagnosed with Dyspneu ec. Pleural effusion, weak greedy state, cold palpable acral, pale face, from the results of the examination of the patient's vital signs found that the patient's blood pressure was 104/76 mmhg, pulse was 106 x / m, breathing 28 x / m, temperature 35.2C, and oxygen saturation 96%.

Pleural effusions form when there is a change in fluid and solute homeostasis, and the mechanism that causes the change determines whether the pleural effusion is an exudate or a transudate. An exudate is fluid that leaks around capillary cells due to inflammation, while a transudate is fluid that escapes from capillaries due to high capillary pressure. Exudative pleural effusions are usually caused by infections, such as pneumonia, malignancy, tuberculosis, and other inflammatory diseases.

The symptoms obtained from the case were Mrs. E complained of shortness of breath, coughing, back pain, difficulty sleeping, and loss of appetite. This is included in the theory that the most common symptom caused by inflammation is shortness of breath. In addition to complaining of shortness of breath, patients with pleural effusion also complain of coughing, pain in the pleural chest, fever, weight loss, etc. [13] (Annisa Fitrah., Ummar dkk, 2021).

Diagnosis

Theoretically, nursing diagnoses that may appear in patients with pleural effusion are as follows 7: Ineffective airway clearance associated with changes in the airway membrane, Gas exchange disorders associated with changes in the alveolus - capillary membrane, Ineffective breathing patterns associated with breathing effort barriers (fluid buildup in the pleural cavity), Nutritional deficits associated with increased metabolic needs, Acute pain associated with physical injury (drain procedure management), Infection risk characterized by invasive procedures, Activity intolerance associated with imbalance between oxygen supply and demand, Helplessness associated with complex or long-term nursing / treatment programs.

After conducting an assessment in accordance with subjective and objective data, the nursing problems found in Mrs. E's patients are: Priority nursing diagnoses in managed cases are ineffective breathing patterns associated with obstacles to breathing efforts with signs that include dyspnea, tachypnea breathing patterns, use of respiratory muscles. Priority nursing diagnoses in managed cases are acute pain associated with physiological injury agents as evidenced by major and minor data in accordance with theory.

As the patient complains of pain with stinging characteristics, pain scale 6, continuous pain, the patient looks grimacing, and the patient looks restless. This is also in line with the concept of

pleural effusion theory, where in clinical manifestations including pain symptoms in the pelural chest. The priority nursing diagnosis in this case is activity intolerance associated with an imbalance between supply and oxygen demand as evidenced by major and minor data in accordance with theory. Such as the patient complaining that his body is not good, feels weak, says that he gets tired easily when doing activities, and the patient's activities are assisted by family and nurses. Priority nursing diagnoses in cases are disturbances in sleep patterns related to environmental barriers as evidenced by major and minor data that are in accordance with the theory obtained. As the patient complained of difficulty sleeping, the patient was awake because he felt tightness and coughing, the patient said he was dissatisfied with his sleep and his sleep was uncomfortable.

Of the eight theoretical nursing diagnoses contained in the case, four diagnoses and four other nursing diagnoses were not established in this case based on the results of the analysis and interpretation of data obtained from the patient's assessment.

Intervention

The nursing plan in managed patients is based on four nursing diagnoses, namely 8,9: Ineffective breathing patterns associated with breathing effort barriers. Objectives and outcome criteria: after 3x24 hours of nursing action, it is expected that the breathing pattern will improve or with the criteria for the results of decreased dyspnea, decreased use of breathing muscles, decreased expiratory phase lengthening, improved breathing frequency, and improved breathing depth. The main intervention given is monitoring respiration. The respiration monitoring plan that will be carried out is to monitor the frequency, rhythm, depth, and effort of breathing, monitor breathing patterns (such as bradypnea, tachypnea, hyperventilation, kussmaul, cheynestokes, biot, ataxic, monitor effective cough ability, monitor sputum production, monitor airway obstruction, palpate the symmetry of lung expansion, auscultate breath sounds, monitor oxygen saturation, monitor AGD values, monitor thoracic x-ray results and document monitoring results.

Acute pain is associated with physiologic injury agents. Objectives and outcome criteria: After 3x24 hours of nursing care, it is expected that the level of pain will decrease with the outcome criteria: complaints of moderate pain decrease, grimacing decreases, anxiety decreases, and difficulty sleeping decreases. The intervention provided is pain management with a nursing plan,

namely identifying the location, characteristics, duration, frequency, quality, intensity of pain, identifying the pain scale, identifying non-verbal pain responses, identifying factors that aggravate and alleviate pain, identifying knowledge and beliefs about pain, identifying cultural influences on pain response, identifying the influence of pain on quality of life, monitoring the success of complementary therapies that have been given, monitor the side effects of analgesic use, provide non-pharmacological techniques to reduce pain, control the environment that aggravates pain, facilitate rest and sleep, consider the type and source of pain in choosing pain relief strategies, explain the causes, period, and triggers of pain, explain pain relief strategies, recommend self-monitoring of pain, recommend appropriate use of analgesics, teach pharmacological techniques to reduce pain, and collaborate on analgesic administration, if necessary.

Activity intolerance is related to an imbalance between oxygen supply and demand. Objectives and outcome criteria: After 3x24 hours of nursing care, it is expected that activity tolerance will increase with the outcome criteria: walking distance increases, complaints of fatigue decrease moderately, and pulse frequency improves. The intervention provided is energy management with a nursing plan, namely identifying disorders of body functions that cause fatigue, monitoring physical and emotional fatigue, monitoring sleep patterns and hours, monitoring location and discomfort during activities, providing a comfortable and low-stimulus environment, doing passive or active range of motion, providing pleasant distraction activities, bedside dudu facilities, if unable to walk or move, recommend bed rest, recommend doing activities gradually, and recommend contacting the nurse if signs and symptoms of fatigue do not decrease.

Sleep pattern disturbances are associated with environmental barriers. Objectives and outcome criteria: After 3x24 hours of nursing care, it is expected that sleep patterns will improve with outcome criteria: complaints of difficulty falling asleep decrease, complaints of frequent wakefulness decrease, and complaints of unsatisfied sleep decrease. The intervention provided is sleep support with a nursing action plan, namely identifying activity and sleep patterns, identifying sleep disturbing factors, identifying foods and drinks that interfere with sleep, identifying sleeping pills consumed, modifying the environment, limiting nap time, if necessary, facilitating stress relief before bedtime, establishing a routine sleep schedule, performing procedures to increase comfort, adjusting the schedule for administering drugs and / or actions to support the sleep-wake

cycle, explaining the importance of adequate sleep during illness, recommending adhering to sleep time habits, and recommending avoiding foods / drinks that interfere with sleep.

Implementation

Nursing implementation was carried out on Mrs. E for 3 days starting from June 01, 2024 to June 03, 2024. In this case study, the authors implemented and evaluated the patient's condition every day. On the first day to the third day the diagnosis of ineffective breathing patterns, acute pain, activity intolerance, and sleep pattern disorders continued to be given to the patient. The first day the patient's condition looked weak after being given nursing measures to monitor respiration, the results showed that the patient's respiration was 28x / m, with oxygen saturation of 96% installed nasal cannula 5 lpm, the patient still felt tightness and the intervention was still continued. Then the patient was given pain management measures in the results that the patient complained of pain in the right back, the pain was stinging, the pain was felt in the right back, pain scale 6, and the pain was continuous, the patient looked grimacing and restless. Then the patient was given energy management measures and obtained the results of the patient complaining that he was easily tired during activities and his body felt weak. The patient looks pale, the general condition looks weak, the patient appears to be doing activities in bed and is assisted by the family. Furthermore, the patient was given sleep support measures to overcome sleep difficulties with the results obtained that the patient complained that it was difficult to sleep for 2 days, the patient also complained of unsatisfied sleep. The patient looks insufficient sleep, the patient looks pale, the acral feels cold and sweaty, and there is blackness in the chart area under the eyes.

On the second day the patient's condition began to improve, after being given nursing measures to monitor respiration, the patient said that the tightness felt was slightly reduced compared to yesterday, the breathing pattern still looked fast, SpO2: 98% installed NRM 12 lpm, RR: 26x/m, the patient is able to cough effectively, sputum (-), there is no additional breath sound (-). Then the patient is given pain management nursing actions and the results show that the patient is still complaining of pain in the right back, with a pain scale of 5, and the pain continues, the patient looks grimacing, the patient looks calmer than the previous day. Furthermore, the patient was given energy management measures, the patient said his body still felt weak, the general condition seemed weak, the patient seemed to do activities in bed and was assisted by the family,

the patient seemed to be able to lie down. Then the patient was given sleep support nursing actions with the patient saying last night he was able to sleep 3-4 hours, the patient said his sleep was comfortable, the patient still looked pale, the patient looked satisfied with his sleep last night, and still saw blackness in the area under the eyes.

Research conducted by Dian Khafifah, et al in 2024 found that the implementation of pursed lip breathing was able to reduce the shortness of breath experienced by patients. Breathing exercises or pursed lip breathing done regularly accompanied by a healthy lifestyle can help improve daily activities, especially in patients with respiratory system disorders such as pleural effusion. In the study, therapy was carried out for 12 days and every day one therapy was carried out, the results showed a change that the breathing pattern had improved, oxygenation had also improved, the airway had also improved and there were no more complaints of mucous cough. [14] (Pratiwi, D.K.N, 2024)

In patients with pleural effusion, patients will experience impaired oxygenation needs. One of the things that can be done for impaired fulfillment of oxygenation needs is to do breathing exercises in the form of breathing exercises with slow and deep breathing techniques, using the diaphragm muscle so as to allow the abdomen to rise slowly and the chest to expand fully, which has the benefit of training the respiratory muscles to work optimally. [15, 16]

On the third day the tightness felt was getting worse, the patient's health condition decreased again with the patient saying the tightness felt was getting worse, the breathing pattern was fast, SpO2: 90% nasal cannula installed 6 lpm, RR: 35x/m no sputum (-). Then the patient still complained of pain in the right back, pain scale 5, and the pain was felt constantly, the patient looked grimacing and restless. Then the patient said his body still felt weak, the patient complained of being tired when doing activities, the general condition still looked weak when doing activities, the patient did not seem to lie down anymore, the patient's activities were still assisted by the family, and the patient did activities in bed. Furthermore, the patient said that last night it was difficult to sleep again due to tightness and coughing, the patient still looked pale, the patient looked sleep deprived, the patient looked dissatisfied with his sleep and the patient's sleeping position was tripod.

Research conducted by Rahma Devia, et al in 2022 found that there were changes between respiratory frequency and oxygen saturation between after and before giving the tripod position and pursed lips breathing for three days. The tripod position is the position of the client on a bed that rests on an overbed table (which is raised to an appropriate height) and rests on both hands with the legs bent inward. Patients given the tripod position can help develop chest expansion. The trick is to arrange the patient's sitting position slightly leaning forward by resting on both hands on the bed with the position of both legs inward. [17, 18]

Evaluation

After being given nursing action for 3 days. In the first diagnosis, namely ineffective breathing patterns, the patient still feels a tightness that is getting worse, respiration is 35 x / m, oxygen saturation is 90% with a 6 lpm nasal cannula installed, the nursing problem of ineffective breathing patterns is partially resolved and the intervention is continued by the room nurse. Then in the second diagnosis the patient still feels pain in the back of his right back, pain scale 5, the pain is felt continuously so that the patient looks grimacing and restless, the nursing problem of acute pain is partially resolved and the intervention is continued by the room nurse.[19, 20]

In the second diagnosis, the patient still feels weak when doing activities, the patient's activities are still assisted by the family, the patient also does activities in bed, the patient still looks weak, the patient's activities are still assisted by the family, the nursing problem of activity intolerance is partially resolved and the intervention is continued by the room nurse. In the fourth diagnosis, the patient said that his sleep was still disturbed, it was difficult to sleep as usual due to tightness and coughing, the patient was also often awake, the nursing problem of sleep pattern disturbance was partially resolved and the intervention was continued by the room nurse.

Conclusion

Based on the overall results of nursing care in patients with pleural effusion in the pulmonary inpatient room of Raden Mtaher Hospital, Jambi City can be concluded as follows: Pleural effusion is a buildup of fluid in the pleural cavity caused by the accumulation of fluid, namely low-protein (transudative) and protein-rich (exudative) fluid. Signs and symptoms of pleural effusion patients are complaining of tightness, which worsens when lying down, coughing,

pleural chest pain, fever, weight loss, etc. Frequent causes of pleural effusion disease are heart failure, liver cirrhosis, nephrotic syndrome and pulmonary embolism (may also present as secretions).

The results of the assessment conducted on Mr. S 65 years old patient said shortness of breath, coughing with sputum, experiencing weight loss, fever, and chest pain due to coughing. In patient Mrs. E 40 years old with a medical diagnosis of Dyspnue ec. Pleural Effusion, the patient said shortness of breath, coughing since 5 months ago, pain in the right back, body weakness, and difficulty sleeping.

Nursing diagnoses that arise in Mr. S patients are ineffective breathing patterns associated with resistance to breathing efforts, nutritional deficits associated with increased metabolic needs, activity intolerance associated with an imbalance between supply and oxygen fluid requirements, hyperthermia associated with disease processes and anxiety associated with lack of exposure to information. In Mrs. E's patient, ineffective breathing patterns are related to respiratory effort barriers, acute pain is related to physiological injury agents (inflammation, ischemia), activity intolerance is related to the imbalance between supply and demand of oxygen fluids, and sleep pattern disturbances are related to environmental barriers.

Interventions given to patients Mrs.E nursing problems are monitoring respiration, pain management, energy management, and sleep support. Implementation is carried out on clients in accordance with the nursing plan that is compiled based on established nursing problems. The author implements observation, therapy, education and collaboration. The evaluation of the nursing care provided is that in three days of care the four nursing problems that arise are partially resolved.

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