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Providing A Half Sitting Position to Pulmonary Tuberculosis Patients In The Seruni Treatment Room At The Central General Hospital

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Abstract

The lungs are one of the vital organs in the human body. To be precise, it is a respiratory (breathing) organ which is related to the respiratory and circulatory systems (blood circulation). Pulmonary tuberculosis is a contagious infectious disease caused by Mycobacterium tuberculosis. Meanwhile, Relapsed Pulmonary Tuberculosis is a patient with Pulmonary Tuberculosis who is declared cured or has had complete treatment and then comes back for treatment with a positive test result for a cough with phlegm from Acid-Fast Basil. The aim of this study was to determine the risk factors for pulmonary tuberculosis at the Central General Hospital of South Sulawesi. This research uses a cross sectional approach. The population in this study includes the case population, namely pulmonary tuberculosis sufferers who experienced a recurrence and the control population, namely pulmonary tuberculosis sufferers who have been declared cured. The sample in this study was all data on patients with Relapsed Pulmonary Tuberculosis who received treatment at the Central General Hospital of South Sulawesi Province. Data analysis was carried out univariate and bivariate using the chi square test. The results of the study can be concluded that there is no relationship between age and the incidence of relapse of pulmonary tuberculosis. The problem and diagnosis determined is to fulfill the need to breathe normally and the inability to fulfill the need to eat and drink enough. Meanwhile, the nursing intervention that was prepared was directed at helping to control the patient's low-fat and low-salt diet regarding sitting therapy in the Semi-Fowler position. This theory can be applied and applied well in treatment focused on pulmonary tuberculosis cases. For pulmonary tuberculosis patients who experience shortness of breath, improve the quality of their breathing by performing the semi-

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Fowler position as a non-pharmacological therapy.

Keywords : Pulmonary Tuberculosis, Semi Fowler Position, Seruni Treatment Room, Hospital

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1. Introduction

The lungs are organs found in the thorax cavity, which provide space for lung volume during breathing, so that the thorax is not pressed by the lungs which expand during inspiration (taking a breath). The thoracic cavity is enlarged in two ways, namely by upward and downward movement by the diaphragm muscle and elevation and depression of the ribs to increase and decrease the anteroposterior diameter of the thoracic cavity.

The lungs are elastic structures that can inflate and deflate like a balloon and expel the air inside through the trachea when there is no force to keep them inflated. (Guyton, 2006). The right lung has 3 lobes, while the left lung has 2 lobes. The left lung is smaller, because the heart takes up more space on this side of the body. Pulmonary Tuberculosis is a contagious infectious disease caused by Mycobacterium tuberculosis. These bacteria can attack almost all organs of the human body, but mostly attack the lungs. Pulmonary tuberculosis is estimated to have infected around a third of the world's population. As many as 95% of cases and 98% of deaths due to this disease occur in developing countries (Kep. Menkes, 2009).

WHO data states that it is estimated that there are still around 9.5 million new cases and around 0.5 million people have died from pulmonary tuberculosis in the world. WHO in the 2012 Global Tuberculosis Report reported that Indonesia was ranked fifth out of 22 countries with the largest tuberculosis problem of 429,730 people and the number of new cases was 183,366 cases. Relapsing Pulmonary Tuberculosis or relapsed Pulmonary Tuberculosis is a patient with Pulmonary Tuberculosis who has previously received treatment for Pulmonary Tuberculosis and has been declared cured or has had

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complete treatment, is re-diagnosed with positive BTA tuberculosis based on a smear or culture examination.

Relapse cases occur in several countries in the world, including India with a total of 106,463 relapse cases, Korea with a total of 6,701 relapse cases, Myanmar with a total of 4,558 relapse cases, and Bangladesh with a total of 3,065 relapse cases (WHO, 2013). Factors that can influence the recurrence of Relapsed Pulmonary Tuberculosis are that there must be an infection, the number of bacilli causing the infection must be sufficient, the high virulence of the tuberculosis bacilli, decreased body resistance allows the bacilli to multiply and this situation causes the recurrence of pulmonary tuberculosis, smoking habits, treatment is too short and drug resistance is possible (MOH RI, 2006).

Research conducted by Suryanto, A (2001) at Kariadi General Hospital Semarang in 1998 found 347 pulmonary tuberculosis sufferers with relapse cases of 9 people (9.4%) aged 15-55 years. WHO (1995) states that in developing countries 75% of pulmonary tuberculosis sufferers occur in the productive age group 15-50 years. (Ministry of Health of the Republic of Indonesia, 2006)

In the early stages, pulmonary tuberculosis does not show specific signs and symptoms. However, as the disease progresses, lung tissue will become more damaged, so that can increase production sputum Which showed with as the patient coughs as a form of compensation for the release of phlegm. Symptoms commonly encountered in pulmonary tuberculosis patients are coughing for 2-3 weeks or more. Apart from coughing, patients also complain of phlegm mixed with blood, coughing up blood, shortness of breath, body weakness, decreased appetite, decreased body weight, malaise, night sweats without physical activity, and fever for more than a month (Santa, 2008).

The simplest and most effective method to reduce the risk of decreased chest wall development is by adjusting the position at rest. The most effective position for patients with pulmonary tuberculosis is the semi-fowler position with an inclination of 30-45° (Yulia, 2008). The semi-fowler position with an inclination of 45°, which uses the force of gravity to help develop the lungs and reduce pressure from the abdomen on the

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diaphragm, the semi-fowler position in pulmonary tuberculosis patients has been done as a way to help reduce shortness of breath (Bare, 2010).

Position semi-fowler capable maximizing expansion lungs and lower usage effort tool help muscle breathing. Ventilation maximum open areas atelectasis and increases the movement of secretions onto the road breath great for issued (Muttaqin 2008). The purpose of action this is For lower consumption O2 and normalize expansion lungs the maximum, as well as maintain comfort Position semi-fowler aim reduce risk of stasis secretion pulmonary and reduce risk decline development wall chest (Masrifatul, 2012).

Giving position semi- fowler on patient tuberculosis Lungs has done as Wrong One how to help reduce congested breath. Effectiveness from action the can seen from *the Respiratory rate* which shows a normal figure, namely 16-24x per minute in adulthood. Implementation of nursing care in providing the semi-fowler position itself by using place sleep and facility pillow which enough for support area back, so can give comfort moment Sleep And can reduce condition congested breath in asthma patients during an attack (Ruth, 2015).

Researchers in line with research conducted by Singal, 2013 entitled "*A Study on the Effect Position in COPD Patients to Improve Breathing Pattern*" found that 64% of patients were better in positions 30-45^0, 24% in positions 60^0, and 12 % of patients are better in the 900 position. Similar to research conducted by Aneci Boki Majampoh and Rolly Rondonuwu (2013) entitled the effect of giving the semi-fowler position on the stability of breathing patterns in pulmonary tuberculosis patients with a p value = 0.000, there is an effect of giving Semi-Fowler position on the stability of breathing patterns in pulmonary tuberculosis patients.

2. Research Methods

The research design used is descriptive analytic with a case study research approach. The variables of this research are 14 basic human needs, Semi-Fowler Position Therapy and Pulmonary Tuberculosis. Sampling was carried out using a non-probability sampling method via purposive sampling. The number of samples in this study was 2

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respondents with a diagnosis of Pulmonary Tuberculosis in the Seruni Treatment Room at the Central General Hospital of South Sulawesi Province who met the inclusion criteria. This research uses instruments in the form of interviews, observations, physical examinations and questionnaires in the format of assessing fourteen basic needs based on Virginia Henderson's nursing theory.

3. Results and Discussion

a. Results

1. Assessment

a) Biological

From the biological assessment of the need to breathe normally, it was found from the data of two patients that there was an increase in respiratory frequency from the normal limit of RR: 16-20 x/mt, namely patient Patient 1 RR: 24x/mt and patient Patient 2 RR: 30 x/mt. Patient 1 complained of shortness of breath and said that the shortness of breath was reduced when sitting, while Patient 2 complained of very shortness of breath when lying down and the shortness of breath decreased when using oxygen. The oxygen given was NRM 9 Lpm. The patient appears short of breath when lying down, there is visible use of accessory muscles for breathing, crackles are heard, inspiration is longer, expiration is decreased. Based on the results of the study obtained from the data of the two patients, Patient 1 said that he had no appetite for the past 2 weeks and had experienced a decrease in weight from 55 kg to 48 kg, while Patient 2 said that he had no appetite for the past 3 weeks and felt nauseous and wanted to vomit when he ate. The patient also experienced a decrease in weight from 70 kg to 60 kg. Objective data from patient 1 shows that the patient did not finish his portion of food

b) Psychological

Patients communicate well, quite cooperative. In communicating, both patients are quite cooperative and use local languages when communicating with family and people around the environment. The patient's expression

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corresponded to the situation he described, when he complained of pain the patient's expression was grimacing. Patients regularly go to the community health center to control tuberculosis or take medication.

c) Sociology

only stays at home every day. Generally the activities are doing light work at home or gardening in the yard. Sometimes patients also feed pet chickens. Patient two every day the patient works in the garden as a farmer. The patient rarely exercises because he often leaves early in the morning and returns late at night. So I rarely have time to exercise.

d) Spiritual

Based on data from studies on religious beliefs and worship. Both patients pray 5 times a day and listen to religious lectures during Friday prayers. The patient accepts his current illness, the patient considers this illness to be normal in his old age.

The results of the assessment are analyzed to determine the components of basic human needs according to Virginia Henderson's theory, then a nursing diagnosis is made. The nursing assessment format as an instrument was prepared based on Henderson's theory. Next, an in-depth nursing assessment was carried out on patients with pulmonary tuberculosis. The assessment data is then analyzed and grouped to determine the nursing problems that arise.

1) Observation and Problem Determination

A nursing diagnosis is a statement that describes the results of the patient's actual or potential assessment of a health problem and that the nurse is licensed and competent to be able to handle it. The patient's actual and potential response is known from basic data obtained from the assessment, review of related literature, the patient's past medical history collected during the assessment (Potter and Perry, 2005). Researchers found two similar problems in patients 1 and 2, namely meeting the need

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to breathe normally and the inability to meet the need to eat and drink enough.

2. Nursing Intervention

Intervention is a category of nursing behavior in which patient-centered goals and outcomes are predicted and determined so that nursing plans are chosen to achieve these goals (Potter and Perry, 2005).

In the first main problem, the inability to meet the need to breathe normally, intervention in providing oxygen therapy in ineffective breathing patterns can be achieved. In theory there are 2 streams of oxygen therapy, namely low flow 1-6 liters/minute and high flow 6-15 liters/minute. Here the author provides high flow oxygen therapy to patient 1, namely 9 liters using the NRM Non Rebreathing Mask. Based on the second main complaint felt by the patient, namely the inability to meet adequate food and drink needs related to biological factors, the author took action to overcome nutritional imbalances that were less than the body's needs, one of which was by assessing the patient's ability to get the nutrition needed.

3. Nursing Implementation

Implementation is structured based on established nursing diagnoses that are patient-oriented and planned nursing actions based on Virginia Henderson's nursing theory.

Based on the implementation of nursing to patients, the author carries out several activities such as communicating every action and activity carried out, health education and providing direct nursing care, as well as providing motivation both psychosocially and spiritually to families and patients. The communication used is therapeutic communication where the author and family establish a relationship of mutual trust, so that the patient is comfortable when the procedure is carried out.

4. Evaluation

Evaluation of the Inability to fulfill the need to breathe normally in patient

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1 after the procedure was carried out for 3 days the patient said he no longer felt shortness of breath RR: 20x/mt no additional breath sounds were heard, crackles, no nostrils, no use of accessory muscles for breathing, hence breathing pattern problems not effectively resolved. Meanwhile, evaluation of patient 2 stated that the shortness of breath had decreased, RR: 22 x/min, no additional breath sounds were heard, rales, no nostrils, no use of accessory muscles for breathing. Then the problem of ineffective breathing patterns is resolved.

Previously, both subjects experienced shortness of breath, chest pain, coughing, and increased respiratory rate. After being given the semi-Fowler position for 3 days, there were changes in subject I and subject II who experienced a decrease in shortness of breath with a normal respiratory rate of 12-20x/minute. The reduction in shortness of breath was also supported by the respondent's cooperative, obedient attitude when given the intervention in the semi-Fowler's position so that shortness of breath was reduced and the respondent could breathe easily. The results of the study showed that there was a change in respiratory rate from 21x/minute to 18x/minute in subject I and 22x/minute to 19x/minute in subject II during 3 days of treatment.

b. Discussion

Coughing occurs due to irritation of the bronchi. The nature of the cough starts from a dry cough (non-productive) then after the inflammation appears it becomes productive (producing spuntum), this occurs for more than 3 weeks. Apart from coughing, shortness of breath will be found in advanced disease, in this condition the infiltration is already in half of the lungs. (Haryati and Zulfiana, 2019).

A person suffering from pulmonary tuberculosis will experience various nursing problems both biologically, psychologically and socially (Santosa, 2017). Impaired fulfillment of food and drink needs in tuberculosis patients is caused by a decrease in leptin concentration in the blood plasma of pulmonary tuberculosis sufferers. Leptin is a protein which is an indicator used to show fat mass stored in tissue, and also appetite. This lack of leptin causes weight loss in sufferers.

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Pulmonary Tuberculosis sufferers must take medication every day for 6 months or more. Medicines consumed over a long period of time certainly have side effects. One of them is usually nausea and vomiting which again affects appetite.

Respiratory disorders in pulmonary tuberculosis are caused by an inflammatory reaction that damages the alveolar-capillary membrane which causes disruption of lung expansion due to fluid accumulation, which will lead to ineffective breathing patterns. Signs and symptoms experienced include increased Respiration Rate, use of accessory muscles for breathing, nostril breathing, chest pain, tightness, and body feeling tired. If not treated immediately it can cause dangerous complications up to death (Ministry of Health, 2015).

Using oxygen therapy can provide better oxygenation and can reduce respiratory rates (Roca, et al, 2010: 408-413). Apart from that, according to Supadi, et al (2008) in the journal Safitri, (2011), the semi-fowler position can provide comfort and help ease breathing difficulties. When an attack of shortness of breath occurs, the patient usually feels short of breath and cannot sleep lying down, but must sit in a semi-fowler position to relieve narrowing of the airway and provide oxygen in the blood). The simplest and most effective method for reducing tightness is by adjusting the patient's position, namely the semi-Fowler position. The semi-fowler position is tilted 30°-45°, using gravity to help expand the lungs and reduce pressure from the abdomen on the diaphragm. The effectiveness of this action can be seen from the respiratory rate which shows a normal rate of 16-24x/minute in adults (Refidkk, 2013).

Lilis Suryani (2016). The semi-Fowler position is the patient's position with the head and chest higher than the pelvis and legs. In the semi-Fowler position, the head and chest are raised with a slope of 30°-45°, that is, using gravity can increase intrapleural pressure and also intraalveolar pressure at the base of the lungs. The force of gravity increases the amount of effort required to ventilate the hanging portion of the lung. This causes air exchange in the vent where the ventilation of this section decreases and the ventilation of other parts of the hanging area increases. In this way,

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the oxygen intake needed by the body is met.

Research conducted by Roihatul Zahroh and Rivai Sigit Susanto (2017) entitled "Effectiveness of the Semi-Fowler Position and Orthopnea Position on Reducing Shortness of Breath in Pulmonary Tuberculosis Patients". The research was conducted at the Muhammadiyah Lamongan Hospital. This research explains pulmonary tuberculosis which is associated with the effectiveness of the semi-fowler position and orthopnea position for reducing shortness of breath.

Diet principles for Tuberculosis patients are a high-calorie, high-protein diet, enough fat, vitamins and minerals. A high-calorie, high-protein diet is given so that tuberculosis patients get enough food to meet their increased calorie and protein needs. In general, the energy requirements of infectious disease sufferers are higher because apart from hypercatabolism, malnutrition also occurs. These two conditions are taken into account in determining energy and protein requirements. Therefore, the recommendation for total energy requirements for tuberculosis patients is increased to 35-45 kcal/Kgbb. Recommendations for energy adequacy for tuberculosis patients with other infections are made through a diet that is adjusted to the increased energy needs of each individual (Schwenk et al).

Virginia Henderson's theoretical approach is not only related to physiological needs but also psychological, social and spiritual needs. This theoretical approach supports nurses in carrying out their roles as caregivers, educators, coordinators, collaborators and advocates in providing comprehensive nursing care. So Virginia Henderson's theoretical approach can be used in nursing practice for respiratory system disorders such as pulmonary tuberculosis.

4. Conclusion

Nursing care for patients with hypertension by implementing the 30º and 45º Semi-Fowler position sitting using Virginia Henderson's nursing theory is carried out using the nursing process starting from assessing 14 basic human needs, observing and determining problems, nursing actions, nursing implementation and nursing evaluation.

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From the study of the main data of the two patients, it was found that there was an increase in respiratory frequency from the normal RR limit: 16-20 x/min, shortness of breath, visible use of accessory muscles for breathing, crackles were heard, inspiration was longer, expiration was decreased. Other data showed that the patient had no appetite for the past 2 weeks and experienced weight loss, felt nauseous and wanted to vomit, it appeared that the patient did not finish his portion of food. Observation and Determination of Problems, found in patients, namely Fulfilling the Need to Breathe Normally and Inability to Fulfill the Need for Sufficient Eating and Drinking. Nursing actions prepared for the problem of inability to meet learning needs to control blood pressure, namely evaluating blood pressure, encouraging the patient and family to control a low-fat and low-salt diet, explaining to the patient about sitting therapy, Semi-Fowler position 30º and 45º, guiding the patient to sit. Semi Fowler position 30º and 45º to lower blood pressure, evaluate the patient's feelings, and evaluate TTV.

Nursing implementation is carried out in accordance with a predetermined plan, the family is involved in every activity as a nursing agent. Implementation was carried out for 5 days. From the results of the evaluation carried out, the problem was resolved. After carrying out the sitting breathing technique in Semi-Fowler position 30º and 45º for 3 times, the patient and family already understand how to carry out pulmonary tuberculosis and the patient will carry out therapy independently or accompanied by family. Based on both cases, it was found that the problem of meeting breathing needs was resolved.

From the results of this research, it is hoped that nurses will be able to provide and improve the quality of service in providing nursing care to patients, especially for patients with pulmonary tuberculosis nursing problems using the Virginia Henderson Approach.

5. Compliance with ethical standards

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Disclosure of conflict of interest

This research collaboration is a positive thing for all researchers so that conflicts, problems and others are absolutely no problem for all writers.

Statement of informed consent

Every action we take as authors is a mutual agreement or consent.

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