P-ISSN: 3025-6518
E-ISSN: 3025-0501

Almakki Health Informatics Journal

NURSING CARE FOR MR. S WAS DIAGNOSED WITH PULMONARY TUBERCULOSIS (TB) IN THE EMERGENCY DEPARTMENT (ED) OF GUNUNG JATI HOSPITAL IN CIREBON CITY

Nadia Sindia Devi[1], Indah Mamay Maftuhah[2], Uswatun Khasanah[3], Neneng Rimawati Nurokhman[4], Endah Sari Purbaningsih[5]
Institut Teknologi dan Kesehatan Mahardika, Jawa Barat, Indonesia

E-mail: nindiasindia@gmail.com[1], indahmamaymaftuha@gmail.com[2], uswatunmisbah@gmail.com[3], Nenengrimawati40@gmail.com[4], endahsari155@gmail.com[5]

KEYWORDS

Pulmonary Tuberculosis, Effective Cough Technique, Patients.

ABSTRACT

Tuberculosis or TB is a disease caused by infection of the Mycobacterium tuberculosis bacteria in the lungs. This condition is sometimes referred to as pulmonary TB. Tuberculosis bacteria that invade the lungs cause respiratory problems, such as chronic cough and shortness of breath. TB patients usually also experience other symptoms, such as night sweats and fever. This study aims to provide an overview of the implementation of Nursing Care in patients with a medical diagnosis of Pulmonary Tuberculosis (TB) in the emergency room of Gunung Jati Hospital, Cirebon City. The method used is a case study approach. The subject in this case study was one patient diagnosed with Pulmonary Tuberculosis (TB) in the emergency room. The results showed nursing care management in patients diagnosed with Pulmonary Tuberculosis (TB). The nursing problem is Ineffective Airway Cleansing, which is carried out by interventions, namely effective cough techniques; interventions are carried out when the patient has difficulty removing sputum, the results obtained at the time of assessment, the patient complains of shortness of breath, coughing and difficulty removing sputum. Before performing effective cough techniques, respiration was 28x/minute, and after performing effective cough techniques, respiration decreased to 25x/minute. This study implies non-pharmacological techniques, such as effective coughing techniques, can be essential in managing patients with pulmonary tuberculosis alongside pharmacological therapy. This study provides a valuable contribution to improving the understanding and practice of nursing care in Tuberculosis cases in the hospital environment, especially in the emergency room of Gunung Jati Hospital, Cirebon City.

INTRODUCTION

Tuberculosis or TB is caused by infection with Mycobacterium tuberculosis bacteria in the lungs (Luo et al., 2024). This condition is sometimes referred to as pulmonary TB. Tuberculosis bacteria that invade the lungs cause respiratory problems, such as chronic cough and shortness of breath (Burki, 2017). Patients with TB usually also experience other symptoms, such as night sweats and fever (Ministry of Health, 2022).

In 2020, tuberculosis (TB) claimed the lives of up to 1.5 million people, including 214,000 HIV-positive individuals. After COVID-19, tuberculosis (TB) is the second most common infectious disease worldwide, trailing only HIV/AIDS in terms of mortality. Globally, an estimated 10 million individuals have tuberculosis in 2020. three million women, 1.1 million children, and 5.6 million men. Every age group and every nation are affected by tuberculosis. Nonetheless, TB can be prevented and treated. To reach the worldwide targets decided upon at the 2018 United Nations (UN) high-level meeting on tuberculosis (TB), US$13 billion will be required yearly by 2022 for prevention, diagnosis, treatment, and services (Kusuma, 2019).

Ten million people worldwide suffer from tuberculosis (TB), which results in 1.2 million deaths annually, according to the WHO Global TB Report 2020. One of the nations with the highest rates of tuberculosis (TB) worldwide is Indonesia, where an estimated 2,845,000 people are ill with the disease, and 98,000 of those individuals die from it every hour (WHO, 2020). Of these cases, 0p to 283,000 TB patients remain untreated and provide a danger of infection to those in their vicinity, as only 67% of cases were identified and treated. After China and India, Indonesia is the nation with the third-highest number of tuberculosis cases worldwide. Data from 2019 shows that there are around 845,000 TB patients in Indonesia (Rokom, 2021).

Treatment of tuberculosis usually takes months with strict medication rules to prevent the risk of antibiotic resistance (Maulida et al., 2024). If not treated immediately, tuberculosis can be fatal. Mycobacterium tuberculosis bacteria can infect other parts of the body organs, such as the kidneys, bones, joints, lymph nodes, or brain membranes; this condition is called extra-pulmonary TB (Ministry of Health, 2022).

TB control efforts in Indonesia have encountered many challenges, including the emergence of the COVID-19 pandemic, so the focus of health programs has shifted to pandemic management. This condition makes them vulnerable to contracting TB, which, of course, risks increasing the number of cases and sources of TB transmission (Agustina, 2022). Practical cough training is a nurse activity that clears secretions in the airway. Practical cough training is carried out, especially in clients with nursing problems of airway clearance ineffectiveness and high-risk problems of lower respiratory tract infections associated with the accumulation of secretions in the airway, often caused by decreased coughing ability (Wartini et al., 2021).

If TB is not treated correctly, the bacteria that cause TB can spread through the bloodstream, causing severe health effects on other organs. One of the organs most prone to being affected is the brain (Faturahman & Purwanto, 2018).

The purpose of this study was to provide an overview of the implementation of Nursing Care in patients with a medical diagnosis of Pulmonary Tuberculosis (TB) in the Emergency Room (IGD, *Instalasi Gawat Darurat*) of Gunung Jati Hospital, Cirebon City. The benefits of this study are that it will increase health practitioners' understanding of practical nursing care strategies for pulmonary TB patients in the emergency room, improve procedures for handling TB cases, and improve the quality of life and prognosis of patients treated at the hospital.

RESEARCH METHOD

This study employs a case study approach, aiming to provide an overview of the application of nursing care for patients with the medical diagnosis of Pulmonary Tuberculosis (TB) in the Emergency Department (ED) of Gunung Jati Hospital in Cirebon City. The subject of this study is a patient diagnosed with Pulmonary Tuberculosis (TB) in the ED of Gunung Jati Hospital in Cirebon City. Data collection methods in this study include interviews, observations, and documentation. Interviews were conducted to gather information from the patient regarding complaints and medical history. Observations were carried out to monitor the patient's physical condition and response to nursing interventions. Documentation involved recording the results of observations and interventions conducted during the study.

The research criteria used include patients diagnosed with Pulmonary Tuberculosis (TB) treated in the ED, patients willing to follow the study procedures, and the absence of other medical complications that could interfere with the study. The collected data were analyzed descriptively to describe the application of nursing care for patients with Pulmonary Tuberculosis (TB). Data analysis was conducted by describing the patient's condition before and after the intervention and measuring changes in the patient's condition based on predetermined parameters, such as respiratory rate and the ability to expel sputum.

RESULT AND DISCUSSION

Pulmonary tuberculosis (TB) can be classified into several parts, namely, a. Pathological division 1) Primary tuberculosis 2) Post-primary tuberculosis b. Radiologic division of active, inactive and quiescent pulmonary tuberculosis (Koch pulmonum) c. Radiologic division (extent of the lesion) 1) Minimal tuberculosis 2) Moderately advanced tuberculosis 3) Far advanced tuberculosis Classification according to the American Thoracic Society: 1) Category 0: never exposed, and not infected, adverse contact history, negative tuberculin test. 2) Category 1: exposed to tuberculosis, but no evidence of infection. Here, the contact history is positive, and the tuberculin test is negative 3) Category 2: infected with tuberculosis but not ill. The tuberculin test was positive, and the radiologic and sputum tests were negative. 4) Category 3: infected with tuberculosis and sick. The classification in Indonesia is based on clinical, radiological, and biological abnormalities: 1) Pulmonary tuberculosis, 2) Former pulmonary tuberculosis, and 3) Suspected pulmonary tuberculosis, which is divided into a) Treated TB suspect: sputum BTA (-), but other signs are positive. b) Untreated TB suspect: sputum BTA negative and other signs are also doubtful. Classification according to WHO 1991 TB is divided into four categories (Yulendasari et al., 2022), namely: 1) Category 1, indicated against stone cases with positive sputum and new cases with severe forms of TB 2) Category 2, indicated against relapse cases, failed cases with BTA positive sputum. 3) Category indicated for BTA-negative cases with extensive lung abnormalities and extra-pulmonary TB cases other than those mentioned in the category. 4) Category 4 is for chronic TB.

The cause of tuberculosis is Mycobacterium tuberculosis, a rod-shaped germ measuring 1-4/Um long by 0.3-0.6/Um thick and acid-resistant. Other species of this germ that can cause human infections are M.bovis, M.kansasii, and M.intracellulare; most of the germs consist of fatty acids (lipids). These lipids make the germ more resistant to acids and chemical and

physical disturbances. Germs can survive in dry air and cold conditions. In tissues, germs live as intracellular parasites in the macrophage plasma. Another trait of this germ is aero. This trait indicates that germs prefer tissues that are high in oxygen content (Gannika, 2016).

Based on the findings in the case, the assessment was carried out on Mr S, 64 years old, who came to the emergency room of Gunung Jati Hospital, Cirebon City. The results of the assessment by interview and observation, the patient came to the emergency room with complaints of shortness of breath and coughing, shortness of breath aggravated (+) accompanied by a fever for three days, there was swelling in the legs, defecation 5x a day slimy and no blood. Blood pressure 86/55 mmHg, pulse 95x/min, respiration 28x/min, spo2 94%, temperature 37.50C.

1) In this case study, the diagnosis is ineffective airway clearance associated with the inability to clear secretions, which is the initial diagnosis shown by complaints of shortness of breath and coughing, worsening shortness of breath (+). Ineffective airway clearance is the inability to clear secretions or airway obstruction to maintain a patent airway. Ineffective airway clearance occurs if the following significant signs are found: Ineffective cough, unable to cough, excess sputum, wheezing, wheezing and or dry bronchi and in neonates, there is meconium in the airway. Minor signs on subjective examination are dyspnea, difficulty speaking, and orthopnea, with minor objective signs in the form of restlessness, cyanosis, decreased breathing sounds, changed breathing frequency, and changed breathing patterns. A number of factors can lead to this condition, such as airway spasm, hypersecretion, neuromuscular dysfunction, foreign bodies in the airway, artificial ventilation, secretions retained in the airway, hyperplasia of the airway wall, allergic reactions, and the side effects of medications (including anaesthesia) (Pokja Team, 2018).

Pharmacological and non-pharmacological management must be carried out to achieve the established nursing care goals (Aprilia & Novitasari, 2023). Implementation is carried out for 1x24 hours to achieve the expected goals, with the cooperation of nurses in the emergency room. Priority diagnosis Ineffective airway clearance is associated with the inability to clear secretions, characterized by complaints of shortness of breath and coughing, worsening shortness (+). For 1 x 24 hours, the author has taken action by the nursing plan that has been made. The implementation that the author did was monitoring the frequency, depth, and effort of breathing, monitoring for airway obstruction, monitoring additional breath sounds (gurgling, wheezing, wheezing, bronchi), monitoring oxygen saturation, teaching effective coughing, positioning semi-fowler, giving NRM oxygen 10 Lpm, collaborating on bronchodilator administration.

The failure to remove secretions or obstructions from the airway in order to keep the airway patent is known as ineffective airway clearance. Effective coughing is the practice of coughing to remove secretions (Tahir et al., 2019). Effective coughing is a method of coughing correctly; the client can save energy so that he is not easily tired and can remove phlegm maximally (Widiastuti & Siagian, 2015). Practical cough training is a nurse activity that clears secretions in the airway. Before taking action, the author conducted an assessment and physical examination to measure respiratory frequency and breath sounds. The purpose of providing effective cough techniques is to help patients who experience ineffective airway clearance; the aim is to assist in sputum discharge and overcome ineffective airway clearance. Based on the

results of the assessment conducted on the subject, the patient experienced shortness of breath ± 2 weeks, coughing up phlegm that was difficult to remove and had a history of OAT treatment in 2018. Based on the data from the assessment results, the nursing diagnosis obtained is ineffective airway clearance. The author applied effective cough techniques to Mr S on March 16, 2024. The results of the airway assessment before the application of effective coughing to Mr S showed the patient was unable to remove sputum with respiration of 28 x/min. There was a rakhi breath sound, and after applying effective coughing to Mr S, the patient could remove sputum with respiration of 25 x/min. However, there was still a rakhi breath sound.

So, effective cough techniques can overcome ineffective airway clearance. These are the main objectives of the effective cough technique, namely, to determine the effectiveness of applying effective cough techniques and to improve airway clearance in patients with pulmonary tuberculosis (Puspitasari et al., 2021). In line with the research conducted (Puspitasari et al., 2021) in a case study entitled Application of Effective Cough Techniques to Overcome Nursing Problems of Ineffective Airway Clearance in Pulmonary Tuberculosis Patients, stated that there was an effect of effective cough techniques on pulmonary tuberculosis patients.

The evaluation obtained in the diagnosis of ineffective airway clearance is related to the inability to clear secretions, characterized by complaints of shortness of breath, coughing and worsening tightness (+). The results were obtained at the time of assessment on March 16, 2024, when the patient complained of shortness of breath, coughing, and difficulty removing sputum. Before performing effective coughing techniques, respiration was 28x / minute, and after performing effective coughing techniques, respiration was 25x / minute.

CONCLUSION

This study concludes that the effective coughing techniques applied were highly beneficial for Mr. S. Initially, his respiration rate was 28 breaths per minute, but after the application of effective coughing techniques, his respiration rate decreased to 25 breaths per minute, indicating a significant improvement in his airway clearance. For future research, it is suggested to include a larger number of subjects and to broaden the scope of interventions related to effective coughing techniques. This study underscores the critical role of effective coughing techniques as an integral part of patient care management for conditions similar to those observed in this case.

REFERENCES

Agustina, N. (2022). *Faktor Risiko TB pada Anak*. Yankes.Kemkes.Go.Id. https://yankes.kemkes.go.id/view_artikel/1812/faktor-risiko-tb-pada-anak-Beberapa

Aprilia, E., & Novitasari, D. (2023). Terapi Relaksasi Nafas Dalam Untuk Penatalaksanaan Nyeri Akut Pasien Gastritis. *Jurnal Keperawatan Dirgahayu*, *5*(1).

Burki, T. K. (2017). Tuberculosis missing from WHO bacteria list. *The Lancet Respiratory Medicine*, *5*(4), 252. https://doi.org/https://doi.org/10.1016/S2213-2600(17)30090-5

Faturahman, Y., & Purwanto, A. (2018). ITGBM Pembentukan Kader Pengawas Minum Obat (PMO) Pada Penderita Tuberculosis. *Jurnal Pengabdian Siliwangi*, *4*(1).

Gannika, L. (2016). Tingkat pengetahuan keteraturan berobat dan sikap klien terhadap terjadinya penyakit tbc paru di ruang perawatan I dan Ii Rs Islam Faisal Makassar. *Jurnal Ilmiah Kesehatan Sandi Husada*, *3*(1), 55–62.

Kemenkes. (2022). *Tahun ini, Kemenkes Rencanakan Skrining TBC Besar-besaran*. Kemkes.Go.Id. https://www.kemkes.go.id/id/rilis-kesehatan/tahun-ini-kemenkes-rencanakan-skrining-tbc-besar-besaran

Kusuma, S. A. K. (2019). Deteksi Dini Tuberkulosis Sebagai Upaya Pencegahan Penularan Penyakit Tuberkulosis Dan Pengolahan Herbal Antituberkulosis Berbasis Riset. *Dharmakarya: Jurnal Aplikasi Ipteks Untuk Masyarakat*, *8*(2), 124–129.

Luo, G., Yang, J., Zhao, Q., Zhu, J., Zhang, J., & Zhao, Z. (2024). Mycobacterium tuberculosis joint infections: A case series. *Infectious Medicine*, 100107. https://doi.org/https://doi.org/10.1016/j.imj.2024.100107

Maulida, R., Sartika, F., & Hidayani, A. (2024). Lama Pemanasan Carbol Fuchsin Pada Pewarnaan Preparat BTA: Heating Time Carbol Fucshin In BTA Staining Preparations. *Borneo Journal of Medical Laboratory Technology*, *6*(2), 608–613.

Puspitasari, F., Purwono, J., & Immawati, I. (2021). Penerapan teknik batuk efektif untuk mengatasi masalah keperawatan bersihan jalan napas tidak efektif pada pasien Tuberkulosis Paru. *Jurnal Cendikia Muda*, *1*(2), 230–235.

Rokom. (2021). *Jadikan Penerus Bangsa Bebas TBC, dimulai dari Diri Sendiri dan Keluarga*. Sehatnegeriku.Kemkes.Go.Id. https://sehatnegeriku.kemkes.go.id/baca/umum/20210324/0137316/jadikan-penerus-bangsa-bebas-tbc-dimulai-dari-diri-sendiri-dan-keluarga/

Tahir, R., Imalia, D. S. A., & Muhsinah, S. (2019). Fisioterapi Dada Dan Batuk Efektif Sebagai Penatalaksanaan Ketidakefektifan Bersihan Jalan Nafas Pada Pasien TB Paru Di RSUD Kota Kendari. *Health Information: Jurnal Penelitian*, *11*(1), 20–25.

Tim Pokja, P. (2018). Standar intervensi keperawatan Indonesia: Definisi dan tindakan keperawatan (Edisi 1). *Jakarta: DPP PPNI*.

Wartini, W., Immawati, I., & Dewi, T. K. (2021). enerapan Latihan Batuk Efektif Pada Intervensi Nebulizer Dalam Mengatasi Ketidakefektifan Bersihan Jalan Napas Anak Asma Usia Prasekolah (3-5 Tahun). *Jurnal Cendikia Muda*, *1*(4), 478–484.

WHO. (2020). *Global Report Tuberculosis*. Geneva : World Health Organization.

Widiastuti, L., & Siagian, Y. (2015). Pengaruh Batuk Efektif Terhadap Pengeluaran Sputum pada Pasien Tuberkulosis. *Jurnal Keperawatan*, *5*(1), 27–34.

Yulendasari, R., Prasetyo, R., Sari, I., Sari, L. Y., & Melyana, F. (2022). Penyuluhan kesehatan tentang tuberculosis (TB paru). *JOURNAL OF Public Health Concerns*, *2*(3), 125–130.