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## The Effect of Applying Semi Fowler Position in Reducing Ineffective Breathing Patterns in Congestive Heart Failure (CHF) Patient at RSUD Porsea, Toba Regency (Case Study Research)

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### Abstract

The inefficiency of heart function in supplying the body's metabolic needs is caused by a heart pump pathology condition known as congestive heart failure (CHF). Common symptoms of heart failure are difficulty in breathing when lying down, thus it is necessary to provide good nursing care to heart failure patients by applying a semi fowler position so that the problem of ineffective breathing patterns. The objective of the study is to overcome ineffective breathing patterns by effectively providing a semi fowler position in patients with Congestive Heart Failure (CHF). The study used a descriptive method with a nursing care case study design including assessment, nursing diagnosis, intervention, implementation and evaluation. Based on the result, the nursing actions during 4 days of treatment is that the effectiveness of the semi fowler position can have an effect on reducing ineffective breathing patterns, namely reduced shortness of breath and breathing becomes stable again.

**Keywords:** *Semi Fowler position, Ineffective Breathing Patterns, Congestive Heart Failure*

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## INTRODUCTION

The heart is one of vital organs in the human body. The inefficiency of heart function in supplying the body's metabolic needs is caused by a heart pump pathology condition known as congestive heart failure (CHF), this condition can even lead to death. Changes in lifestyle, increased calorie, fat, and salt consumption, smoking, and decreased activity have led to an increased incidence of heart disease (Saida, 2022).

Heart failure or congestive heart failure (CHF) is a very serious condition because the number of deaths caused by heart failure continues to increase every year (Fajriah, 2020). This situation requires more attention to reduce the incidence of heart failure (Anggraheni, 2019). According to the World Health Organization (2022), cardiovascular disease is the number one killer disease in worldwide. Data showed that 17.9 million deaths are recorded caused by cardiovascular disease each year. Heart failure is the cause of 85% of deaths in cardiovascular disease patients. The prevalence occurred 75% in low- to middle-income countries and mostly in the population aged <70 years old. Europe is the continent with the highest population of heart failure patients compared to other continents such as North America, Australia, Asia, and Africa. Germany is the country with the largest population of heart failure patients in Europe, reaching 4% (European Society of Cardiology, 2020).

In Asia, heart failure is the biggest health challenge; the prevalence of heart failure in Thailand (19%), Vietnam (15%), the Philippines (9%), Taiwan (2.2%), and Malaysia (6.7%) and Singapore (4.5%), those are the highest prevalence in Asia and even in the world (Saroinsong et al., 2021). Congestive heart failure is the second leading cause of death in Indonesia after stroke (Ministry of Health of the Republic of Indonesia, 2020). Data Basic Health Research (Riskesmas) in 2022 showed that the prevalence of CHF reached 5%, with a higher prevalence in men (66%) compared to women (34%), with a doctor-diagnosed prevalence of 1.5% (Ministry of Health of the Republic of Indonesia, 2023). Based on doctor-diagnosed in North Sumatera Province, the prevalence was 1.3% or approximately 55,351 people, while based on doctor diagnoses/symptoms it was 0.13% or approximately 26,819 people (Riskesmas 2022). According to the author's observation on medical

records at RSUD Porsea, the number of CHF patients was recorded at 670 patients from 2024 to February 2025.

According to the American Heart Association (AHA), the signs and symptoms that appear in CHF patients include chest pain, shortness of breath, especially when lying down, fatigue, coughing or wheezing, especially when exercising or lying down. Shortness of breath is a common symptom for many people with heart failure. The shortness of breath in heart failure is caused by the decreased ability of the heart to fill and empty, producing elevated pressures in the blood vessels around the lung. Common symptoms of heart failure are difficulty in breathing when lying down (this is a specific symptom of heart failure), necessity of propping up the head of the bed with many pillows, wakefulness at night with shortness of breath, cough at night or when lying down, shortness of breath with activity, swelling of ankles or legs, unusual fatigue with activity, and fluid weight gain (American Health Association, 2023).

In Indonesian Nursing Diagnostic Standards, ineffective breathing patterns are inspiration and expiration that do not adequately provide ventilation (PPNI, 2016). CHF disease results in pulmonary failure resulting in accumulation of fluid in the alveoli. This causes the heart to not be able to function optimally in pumping blood. Another impact that arises is the changes that occur in the respiratory muscles. These things result in the supply of oxygen throughout the body being disrupted resulting in dyspnea (Aprilia et al., 2022).

Pharmacological management of CHF is often used are ACE inhibitors, Angiotensin-2 receptor blockers (ARBs), Beta Blockers, and Minerals Receptor Antagonists (MRAs). Other pharmacotherapeutic considerations related to CHF are Diuretics, Sacubitril valsartan and Ivabradine (National Health Service, 2023).

One way to deal with ineffective breathing is by applying a semi fowler position to the patient. Semi fowler position is a 45° position at the head of the bed area. The purpose of semi fowler position is to help with the respiratory and cardiovascular difficulties (Yulianti & Chanif, 2021). Therefore, based on the above, it is necessary to provide good nursing care to heart failure patients by applying a semi fowler position so that the problem of ineffective breathing patterns can be resolved, the authors take the title namely the effect of applying semi fowler position in reducing ineffectiveness breathing patterns in *Congestive Heart Failure* (CHF) Patient at RSUD Porsea, Toba Regency.

## RESEARCH METHODS

The study method is descriptive qualitative with a case study design using a nursing care process approach. The problem focused on a patient namely Mr. EH at RSUD Porsea with congestive heart failure (CHF). Nursing care was implemented on March 4 to 7, 2025. Data collection was done by way of interviews and observation. This study used primary analysis by interviewing and direct patient observation using a nursing analysis questionnaire, and secondary data analysis was gained from patient medical record. Nursing diagnoses are determined using the Indonesian Nursing Diagnosis Standards (IDHS) based on existing data analysis. Researchers used therapeutic communication during interviews, observations, and assessments in the nursing process.

Researchers created a comfortable environment and build a trusting relationship with the patient during nursing assessment stage. Researchers chose non -pharmacological therapy that could be performed on patient but based on evidence – based practice and adapted to the Indonesian Nursing Diagnosis Standards (IDHS), Indonesian Nursing Outcomes Standards (SLKI), and Indonesian Nursing Intervention Standards (SIKI). Non – pharmacological therapy implemented to CHF patient was semi fowler position to reduce ineffective breathing patterns. Nursing Implementation and Evaluation is documented with the SOAP model. The administration of semi fowler position in CHF patients is given by positioning the patient 45° at the head of the bed area for 4 days for 15 minutes.

Assessment of oxygen saturation and respiration rate is carried out every day after giving the semi fowler position to determine the progress that has occurred.

## RESULTS AND DISCUSSION

The initial assessment process was carried out on day zero of treatment on 4 March 2025. At the time of assessment, it was found that the patient's general condition appeared weak with *compos mentis* consciousness. At the time of assessment, the patient complained of chest pain with pain scale 6 and frequency of pain 3-4 times per hour. Shortness of breath, his breathing felt fast and deep. The patient is on oxygen. On physical examination, it was found that the patient's vital signs included: Blood Pressure 198/105 mmHg, Pulse: 130x/m, Temperature: 36.4°C, Respiration: 28x/m, SpO<sub>2</sub>: 86% using O<sub>2</sub> NRM 5 lpm.

The Indonesian National Nurses Association (PPNI) based the emerging nursing diagnoses on the findings of data analysis adjusted for the grouping of nursing diagnoses in the 2017 revision of the Indonesian Nursing Diagnostics Standards (SDKI) edition 1 print III. The client's condition is in accordance with nursing guidelines for establishing nursing diagnoses, namely ineffective breathing pattern related to difficulty in breathing, and respiration 28x/m, and installed oxygen (D.0005). Decreased cardiac output related to altered afterload is described by shortness of breath, pain in the left chest, weakness, pale, cyanosis, sinus tachycardia ECG results. This diagnosis was raised because the client's data assessment results found shortness of breath, pain in the left side, and the body feels weak. This is in accordance with the theory that decreased cardiac output is the inadequacy of the heart to pump blood to fulfill the body's metabolic needs (Tim POKJA SDKI DPP PNI, 2017). Acute chest pain related to a physiological injury agent, likely related to pain in the left-sided chest, a sensation of pressure, restlessness, grimacing, P: lack of oxygen supply, Q: pressing sensation, R: the patient stated that the pain was in the left-sided chest and does not spread, S: Pain scale 6 on a scale of 1.10. T: the pain is brief (less than 5 minutes) and occurs frequently 3-4 times per hour (D.0076).

After assessing the information from the aforementioned diagnoses, interventions that are in accordance with the Indonesian Nurses Association (PPNI) and are taken from the 2018 version I print II of the book Indonesian Nursing Intervention Standards (SIKI) are then given. In this study, the semi fowler position, which involves elevating the head of the bed to 45-degree angle, is the key nursing intervention for managing ineffective breathing patterns.

One of the interventions that the authors focused on was to overcome the problem of ineffective breathing patterns by providing non-pharmacological techniques in the semi fowler position. This position can increase saturation and reduce respiratory rate, relax the patient and give oxygen if necessary to reduce the shortness of breath experienced by the patient (Tanujiarso et al., 2022). The interventions that the authors provided are in accordance with the main complaints and signs and symptoms or problems experienced, including monitoring breathing patterns to find out the extent or ineffectiveness of the patient's breathing patterns, monitoring additional breath sounds to determine the level of shortness experienced by the patient, positioning the semi fowler to provide comfort to the patient because usually someone who experiences shortness of breath will feel comfortable when given a semi fowler position. In theory, the semi fowler position is positioning the client in a half-sitting position 30-45 degrees with the aim of helping breathing, so that oxygen will be absorbed to the maximum and remove carbon dioxide trapped in the lungs and the patient can breathe more easily and will reduce discomfort (Suhendar & Sahrudi, 2022).

The implementation of nursing for ineffective breathing patterns is applying the semi fowler position, includes monitoring oxygenation status before and after changing positions, adjusting the bed and positioning the patient, ensuring frequently used items are within reach, and providing support for edema if present. This position helps improve oxygenation, reduce shortness of bread, and increase

patient comfort. Change the patient's position every 2 hours to prevent pressure ulcer and promote circulation, while also informing the patient before each change.

The implementation for the diagnosis of decreased cardiac output focused on cardiac care involves identifying secondary signs/symptoms, monitoring oxygen saturation and vital signs, positioning the patient in a semi fowler position, providing nutritional support, offering emotional and spiritual care, administering oxygen and medications, maintain oxygen saturation above 94%, and advising on lifestyle changes like smoking cessation (inj. Furosemide 1 appl/12 hours, ISDN 5 mg 3x1).

Meanwhile, the implementation for the diagnosis of acute pain, pain management, begun with a thorough assessment includes identifying the pain's location, characteristics, durations, intensity using a pain scale. It also involves creating a supportive environment, explaining the pain's causes and triggers, teaching non-pharmacological pain management techniques to reduce pain. Furthermore, it highlights the collaborative administration of analgesics (Inj. ketorolac 1 appl/8 hours, inj. ranitidine 1 appl/12 hours, inj. ceftriaxone 1 vial/12 hours).

Nursing care was given from March 4 to 7, 2025, nursing care progress notes were monitored. After four days of nursing care and monitoring, the client was still in the semi-fowler position and receiving furosemide injections. This indicates progress in the patient's condition, as the primary symptoms were alleviated. The shortness of breath and left chest pain were gone indicates the treatment was effective in addressing the patient's initial complaints. This result is aligned with Kasan & Sutrisno (2020) which stated that placing patients with Congestive Heart Failure (CHF) in a semi fowler position can reduce their respiratory rate. This position is thought to decrease the burden on the heart by reducing the amount of blood returning to it (preload) and by minimizing pressure on the diaphragm and liver.

Nurses play a vital role in managing congestive heart failure, including providing oxygen therapy. The nursing process guides the care provided to the patient, with interventions like placing the patient in a semi fowler position to improve breathing and reduce shortness of breath. After four days of treatment, evaluation showed improved breathing patterns (SpO<sub>2</sub> 98%, BP: 128/80 mmHg, HR: 89 x/m, Respiratory: 22 x/m, and Temp: 36°C), reduced pain, and decreased cardiac output, but continued monitoring and patient education are still important. The semi fowler position can reduce shortness of breath and increase sleep duration (Aprilia et al., 2022). After four days of treatment, evaluation of the diagnosis of decreased cardiac output, described as a condition of the heart's inadequacy in pumping blood to fulfill the body's metabolic needs (SDKI DPP PPNI Working Group Team, 2017), the patient reported no longer shortness of breath, no pain, was no longer pale, oxygen had been removed, indicating improved cardiac output. We also advised the patient to avoid smoking and other risk factors for health failure when he returned home. On the other hand, evaluation of the diagnosis of acute pain, the patient stated no pain, with a pain scale of 0. The authors advised the patient to practice deep breathing techniques to manage pain if occurs at home.

## CONCLUSION

Congestive Heart Failure (CHF) is a specific cardiovascular disease where the heart struggles to pump blood effectively due to weakness or stiffness, leading to symptoms like shortness of breath and pain. This condition, which can affect one or both sides of the heart, can be caused by various factors, including coronary artery disease, heart inflammation, or high blood pressure.

The results of the study concluded that the implementation in the form of applying the semi fowler position have a positive influence on reducing ineffective breathing patterns and shortness of breath in CHF patients. The implementation of the implementation of the semi fowler position in CHF patients which was carried out for four days showed results that were in line with expectations

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