



The Effect of Oxygenation on Improving Breathing Pattern in Congestive Heart Failure Case

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ABSTRACT

Objective: To determine the effect of oxygenation on increasing ineffective breathing patterns in congestive heart failure (CHF).

Method: This case study uses a descriptive method that includes an assessment that aims to provide a detailed description of the background, nature and character of a case. This study uses three data collection techniques, namely, primary data (interviews and observations), and secondary data (documentation).

Result: After giving oxygen, the results showed that there was a change in breathing pattern for the better, no shortness of breath, and a normal frequency of respiration 21 x/minute and SPO₂ 99%.

Conclusion: It is concluded that the ineffective breathing pattern can be overcome by giving oxygenation. It can be seen from the results of the research evaluation that giving oxygen before and after can have an effect on improving breathing.

Keywords: breathing, congestive heart failure, oxygenation

Introduction

Congestive Heart Failure (CHF) is a condition in which the heart is unable to pump blood to meet the body's circulatory needs for metabolism and oxygen (Nugroho et al., 2016). Heart failure is the inability of the heart to pump blood in sufficient quantities to meet the tissue needs for oxygen and nutrients, heart failure is a pathophysiological condition in which the heart as a pump is unable to meet the blood needs for tissue metabolism (Sukarmin, 2016). The World Heart of Organization (WHO) in 2018 stated that more than 17 million people in the world died from heart and blood vessel disease. Based on data from basic health research (Riskedas) in 2018,

the incidence of heart and blood vessel disease is increasing from year to year. At least 15 out of 1000 people, or about 2,784,064 Indonesian individuals suffer from heart disease (Riskasdas, 2018).

Heart failure is a clinical syndrome (a set of signs and symptoms), characterized by shortness of breath and fatigue (at rest or activity) caused by structural or functional abnormalities of the heart. Heart failure is caused by a disorder that leads to a reduction in ventricular filling (diastolic dysfunction) and/or myocardial contractility (systolic dysfunction), (Nurarif, 2015).

Nursing problems that arise in patients with heart failure are the actual high risk of decreased cardiac output, chest pain, high risk of ineffective breathing patterns, high risk of excess fluid volume and activity intolerance (Mutaqin, 2009). In congestive heart failure patients with ineffective breathing patterns occur because the left ventricle is unable to pump blood coming from the lungs, resulting in an increase in pulmonary circulation blood pressure which causes fluid to be pushed into the lung tissue (Nugroho, 2016).

Congestive heart failure with the criteria of experiencing shortness of breath and composmentis consciousness with the results showing that there is a change in breathing patterns for the better, not experiencing shortness of breath and normal breathing frequency after being given oxygenation therapy (Wardani, et al., 2018)

Oxygen therapy is the administration of oxygen in excess of atmospheric air or $FiO_2 > 21\%$. The purpose of oxygen therapy is to optimize tissue oxygen and prevent respiratory acidosis, prevent tissue hyoxia, reduce respiratory work and muscle work, and maintain $PaO_2 > 60$ mmHg/ $saO_2 > 90\%$. One indication of oxygen therapy is given to changes in respiratory rate or breathing patterns (Tarwoto, 2015).

Based on the description above, the problem of the ineffectiveness of the breathing pattern in CHF patients is still widely experienced by the community. Therefore, as a health worker, it is necessary to take action to minimize and even prevent the bad possibility that occurs if the ineffective breathing pattern is not immediately addressed, namely by prioritizing oxygenation. This is what underlies the author's interest in making a scientific paper with the title "The effect of oxygenation on improving breathing patterns in cases of CHF".

Objective

To determine the effect of oxygenation on increasing ineffective breathing patterns in congestive heart failure (CHF).

Method

This research method is descriptive in the form of case studies. Is a research that includes an assessment aimed at providing a detailed description of the background, nature and character of a case, in other words that this case study focuses on a case intensively and in detail. Research in the method is carried out in depth on a situation or condition in a systematic way starting from making observations, collecting data, analyzing information and reporting results (Nursalam, 2015).

In this case study, the subject is Mrs. S with an ineffective breathing pattern with Congestive Heart Failure (CHF) at RSUD dr. R Goeteng Taroenadibrata Purbalingga. Data collection was carried out on January 11, 12 and 13, for three days starting from assessment to evaluation. Collecting data on the administration of oxygenation therapy in overcoming

ineffective breathing patterns in Congestive Heart Failure (CHF) patients using primary data and secondary data. Primary data is by (interviews and observations), interviews are used as a data collection technique to find problems that must be investigated and also if researchers want to know things from respondents more deeply. The results of the interview contain the patient's identity, main complaint, history of current illness, past medical history, and family history of illness (Sugiyono, 2015). Interviews were conducted on the patient, namely Mrs. S and his family, Mr. R as the patient's son.

Observation, in conducting observations, researchers will be involved in the daily activities of the work process and the people observed as a source of research data, such as observing the respiratory system, patient responses after nursing actions are carried out (Sugiyono, 2015). Observations made were physical examination with IPPA approach Inspection, Palpation, Percussion and auscultation. In this study, the authors measured using an examination measuring instrument, such as measuring blood pressure, calculating respiratory rate, and calculating pulse frequency. The author uses several equipment used in the data collection process, namely sphygmomanometer, oximeter, stethoscope, watches and stationery.

While secondary data, namely documentation techniques, is a complement to the use of observation and interview methods in qualitative research. The documentation study in this study is to look at the results of diagnostic examinations and other relevant data, such as the results of laboratory, radiology, or other physical examinations to find out all conditions and abnormalities in patients (Sugiyono, 2015). In this study, it was obtained from the results of Mrs. S supporting examinations including laboratory examinations, ECG examinations and Thorax examinations.

Results

Mrs. S aged 60 years, address Munjul rt 14 / rw 07, Kutasari Purbalingga, religion Islam, date of entry January 11, 2022, medical diagnosis of Congestive Heart Failure (CHF). During the assessment, it was found that the reason for the patient's admission to the hospital was that the patient had shortness of breath. The patient's son said Mrs. S had previously been taken to the clinic but Mrs. S's condition did not change. The patient's child decided to bring Mrs. S to the hospital for treatment, Mrs. S was transferred to the lavender room on January 11, 2022 at 11.15 WIB when the assessment was found the patient complained of shortness of breath, the patient looked weak, breath sounds wheezing, there was nostril breathing. Examination of vital signs, blood pressure 184/93 mmHg, temperature 36 °C, pulse 85% x/minute, respiratory rate 26 x/minute, Spo2 92%.

On the first day the authors monitored breathing patterns, monitored breath sounds, and monitored blood pressure in patients with the subjective response of Ny. S said shortness of breath, objective data obtained wheezing breath sounds, nostril breathing accessory muscles, respiration 26 x/minute, Spo2 92%, blood pressure 184/93 mmHg, pulse 85x/minute, temperature 36°C. The author placed an O2 nasal cannula at 4 liters/minute, and positioned the patient in a semi-Fowler's position.

On the second day, January 12, 2022 at 11.00 WIB, the writer monitored the breathing pattern of Mrs. S and vital signs with subjective data Mrs. S said breath was still short of breath, and objective data was wheezing breath sounds, respiration 24 x/minute, Spo2 98%, blood pressure 180/100 mmHg, pulse 85 x/minute, temperature 36°C, attached oxygen cannula 4 liters / minute. The author teaches deep breathing techniques and patients can do it.

On the third day on January 13 at 14:10 WIB, the author monitored breathing patterns and vital signs. Subjective data obtained from the patient said that shortness of breath had decreased, the patient's objective data seemed more relaxed, respiration was 21 x/minute, Spo2 99%, blood pressure 155/80 mmHg. , pulse 90 beats/minute, temperature 36, 2°c.

Based on the observations obtained from Mrs. S showed that there was a change in breathing patterns for the better, did not experience shortness of breath and normal breathing frequency after being given oxygen therapy.

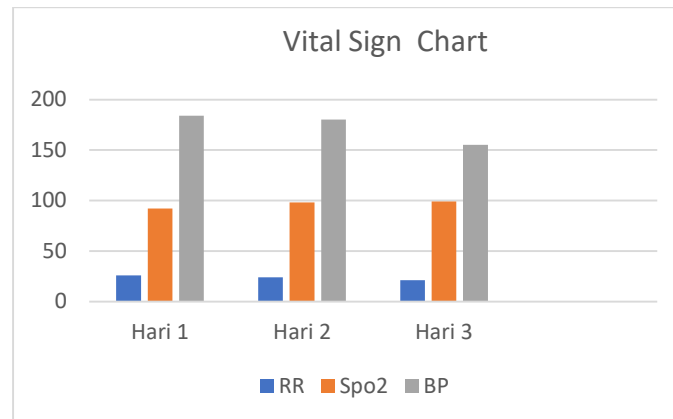


Figure 1. Vital Sign

Discussion

Description of the respiratory rate before oxygen therapy was given: in the patient, namely Mrs. S before being given oxygenation therapy with a nasal cannula 4 liters/minute, it was found that the patient had shortness of breath with a respiratory rate of 26 x/minute, the presence of nostril breathing, using respiratory accessory muscles, wheezing breath sound, Spo2 92%, blood pressure 184/93 and pulse 85 x/minute.

The focus of the assessment is on CHF patients with the main complaints, namely dyspnea or shortness of breath, physical weakness and systemic edema (Padila, 2012). The cause of dyspnea in general is congestive heart failure because changes in the patient's position will cause changes in ventilation and percussion (Djojodibroto, 2009).

An overview of the respiratory rate after being given oxygen therapy, after being given oxygen therapy with a nasal cannula 4 liters/minute to Mrs. S. The results showed that shortness of breath had decreased, and when breathing was more comfortable, with respiration results 21 x/minute, Spo2 99%, pressure blood 155 mmHg, pulse 90 x/minute, temperature 36,2 °c, the patient does not appear to be using the accessory muscles of the nostrils and breathing rhythm is regular.

This is in accordance with Hidayat's theory, the need for oxygen is a basic human need that is used for the survival of the body's cell metabolism, maintaining life and the activities of organs and cells (AA Hidayat, 2006). So that if there is a lack of oxygen it will have a bad impact on the body and additional therapy is needed for patients who have impaired oxygenation (Bachtiar, 2015). The author also positions the patient in a semi-Fowler position, by positioning the semi-Fowler to reduce the effort to use the accessory muscles of breathing, maximal ventilation opens atelectasis and improves the airway (Mutaqin, 2015).

This study is in line with the results of studies on patients Mr. S at RSUD DR. Soedirman kebumen, the results were obtained after being given oxygen therapy with nasal cannula 4 liters/minute, the patient seemed comfortable and able to regulate his breath with respiration 16-24 x/minute, did not use respiratory accessory muscles and had no nostrils.

Conclusion

After the author carried out nursing care for three days starting on January 11, 12 and 13, 2021, namely providing oxygenation therapy to Mrs. S with an ineffective breathing pattern with cases of Congestive Heart Failure (CHF). Judging from the evaluation results, it can be concluded that the administration of oxygen therapy can overcome ineffective breathing patterns.

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