JURNAL VNUS
Vocational Nursing Science
Vol : 05
No : 02
Year: 2023
DOI : doi.org/10.52221/jvnus.v5i2.338
e-issn: 2656-8799
VOCATIONAL NURSING SCIENCE
homepage: https://ojs.stikesmucis.ac.id/index.php/jvnus

Implementation of Deep Breath Relaxation Techniques As An Effort to Overcome Shortness Of Breath in Congestive Heart Failure Patients with Ineffective Breathing Pattern Problems

Asep Gunawan[1], Nur Hidayat[1], Sinta Siti Rahmah[1]
[1]*STIKes Muhammadiyah Ciamis, West Java, Indonesia*

Correspondence: Sinta Siti Rahmah
Email: sintasitir@gmail.com
Address: Desa Citeras 06/03, Kecamatan Malangbong, Kabupaten Garut, 44188, Jawa Barat, 088223661346

Submitted: 15 Oct 2023, Revised: 2 Nov 2023, Accepted: 7 Nov 2023, Published: 15 Nov 2023

ABSTRACT

Introduction: Congestive heart failure (CHF) is a cardiovascular disease that is defined as a deadly disease in the world. CHF is a condition in which the heart is unable to pump blood to meet the needs of oxygen and nutrients in the body's tissues. Objective: To present care with deep breathing relaxation interventions as an effort to overcome shortness of breath in congestive heart failure patients with ineffective breathing patterns. Method: The research design used is descriptive analysis with a case study approach. Subjects in this case study were adult patients with congestive heart failure (CHF) and ineffective breathing patterns. Data collection techniques include interviews, observation, physical examination, and documentation studies. Result: The case study at the assessment stage found that the client complained of shortness of breath. The intervention and implementation used to reduce shortness of breath is by providing breathing relaxation exercises for 10 minutes when complaints of shortness of breath are felt. After the intervention, the client's breathing frequency decreased from 28 x/minute to 22 x/minute, while the subjective data from the anamnesis showed that the client's shortness of breath was reduced. Conclusion: Nursing care for patients with congestive heart failure (CHF) and shortness of breath is well managed. Providing deep breathing relaxation interventions is effective in reducing respiratory frequency.

Keywords: congestive heart failure, deep breathing relaxation, ineffective breathing patterns.

Introduction

The prevalence of CHF according to the American Heart Association (AHA, 2021) has increased from time to time (Nurhayati et al., 2022). Based on data from the Global Health Data Exchange (GHDx) in 2020, the number of cases of congestive heart failure in the world reached 64.34 million cases with 9.91 million deaths and an estimated US$346.17 billion

spent on patient care costs (Lippi & Sanchis-Gomar, 2020). Congestive heart failure is the second most common cause of death in Indonesia after stroke (Indonesian Ministry of Health, 2020). Based on Basic Health Research data for 2022, the prevalence of congestive heart failure in Indonesia has reached 5%, where it is more common in men (66%) than women (34%) who are diagnosed by a doctor at 1.5% or around 1,017,290 residents (Kementrian Kesehatan RI, 2020). The prevalence of heart failure increases with age. Patients with heart failure are highest at the age of 65-74 years around (0.5%) diagnosed by a doctor and the lowest at the age of > 75 years around (0.4%). In terms of sex, the prevalence of heart failure sufferers is higher in women (0.2%) than men (0.1%) (Rispawati, 2019). Research conducted in the United States shows that the risk of developing Congestive Heart Failure (CHF) is 20% for ages ≥ 40 years with an incidence of > 650,000 new cases diagnosed with Congestive Heart Failure (CHF) over the last few decades. The incidence of Congestive Heart Failure (CHF) increases with increasing age. The mortality rate for Congestive Heart Failure (CHF) is around 50% within five years (Tanzila et al., 2022).

Congestive Heart Failure (CHF) is a cardiovascular disease which is defined as a deadly disease in the world (Rahmat, 2018). CHF is a condition in which the heart is unable to pump blood to meet the needs of oxygen and nutrients to the body's tissues (Suharto, 2021). This situation begins with the weakening of the walls of the heart muscle which results in heart failure in pumping and adequate blood supply. The World Health Organization (WHO) states that globally heart disease is the highest cause of death worldwide in the last 20 years (World Health Organization, 2020).

Data from the Basic Health Research (Riskesdas) of the Indonesian Ministry of Health in 2021, stated that the most CHF was in the province of Kaltara, namely 29,340 people or around 2.2%, while the least sufferers were in the province of North Maluku, namely as many as 144 people or around 0. 3% The estimated number of sufferers of heart failure based on diagnosis or symptoms, was mostly in the province of West Java, with 96,487 people or around (0.3%) while the least was 945 people or (0.15), namely in the province of Bangka Belitung (Riskesdas, 2018). Based on the Tasikmalaya City Health Profile (2018) Heart disease in Tasikmalaya ranks third out of seven non-communicable diseases. In 2018 there were 2,948 people with heart and blood vessel disease. Of these, 208 cases were caused by heart failure (Dinas Kesehatan Kota Tasikmalaya, 2018)Reporting from id.scribd.com, based on reports of the top 10 inpatient diseases that occurred at Ciamis Hospital in 2021-2022, CHF is in fourth place for the incidence of non-communicable diseases.

According to Fadhila (2022) as the number of cases of cardiovascular disease continues to increase, CHF has also increased (Fadhila & Handayani, 2022). The clinical symptoms that are the main complaint of CHF are shortness of breath, which the patient will automatically feel uncomfortable and will hinder the patient's activities or Activity Daily Living (ADL). When the disease worsens and its manifestations increase, it can cause stress to the patient, both physically and psychologically and if left unchecked will disrupt a person's health status. Complaints of shortness of breath appear related to the

accumulation of blood in the lungs or pulmonary edema (Rahmatiana & Clara, 2019).This is because the contractility of the left ventricle decreases, resulting in a decrease in cardiac output as a result of which the remaining blood volume in the left ventricle increases. In addition, blood accumulates in the left atrium which causes pulmonary venous return, causing pulmonary edema. This condition causes lung dysfunction in the form of decreased exchange of oxygen and carbon dioxide between the air and blood in the lungs (Siregar, 2020). Other clinical manifestations are fatigue, rapid pulse, activity intolerance and fluid retention, decreased arterial O2 levels, pulmonary & peripheral edema and disturbed sleep patterns (Utami et al., 2019).

Laboratory results showed hyponatremia, hyperkalemia in the advanced stages of heart failure, increased blood urea nitrogen (BUN) and creatinine, increased bilirubin and liver enzymes. In addition, there was an enlarged heart, edema or pleural effusion which confirmed the diagnosis of CHF on chest photo examination and revealed tachycardia, cardiac chamber hypertrophy and ischemia (if caused by AMI), on EKG examination (Megasari, 2022).If treatment of CHF patients is not carried out immediately, it will cause many serious complications and even cause death.

Signs of danger posed in patients with CHF is shortness of breath. Nurses as providers of nursing care through independent and collaborative actions facilitate patients to solve nursing problems. Client nursing diagnoses that appear in patients with dyspnea, namely changes in breathing patterns can be given interventions such as deep breathing exercises, giving semi-Fowler's positions and collaborating with doctors in administering oxygen (Nirmalasari, 2017). In addition, deep breathing relaxation is a simple and effective method of reducing shortness of breath. Deep breathing relaxation is a breathing technique using the diaphragm muscle which is done slowly so that the abdomen is lifted and the chest can be fully expanded so that lung ventilation increases. In Suharto's research (2021) on "Deep Breathing Exercise and Gradual Activities in Reducing Dyspnea in Congestive Heart Failure Patients" in his research using literature studies it can be concluded that giving deep breathing relaxation can overcome the problem of dyspnea in CHF patients (Suharto, 2021). Research on breathing exercise in heart failure patients conducted by Sepdianto (2013) was carried out for 15 minutes 3 times a day within 14 days. The results of this study showed p = 0.000 5 in reducing dyspnea (Blesinki et al., 2022). The use of deep breathing relaxation as a nursing intervention in reducing dyspnea in CHF patients has not been widely implemented in Indonesia.

Objective

To present care with deep breathing relaxation interventions as an effort to overcome shortness of breath in congestive heart failure patients with ineffective breathing patterns in the Kenanga Room.

Method

This study uses a case study design with a nursing care approach which includes assessment, formulation of diagnoses, interventions, implementation and evaluation which were carried out from 30 May to 2 June 2023 in the Kenanga Room BLUD RSU Kota Banjar. Enforcement of nursing diagnoses refers to IDHS, SIKI, SLKI and nursing evaluations are documented using the SOAP method. The subjects used in this study were patients who experienced Congestive Heart Failure (CHF) with ineffective breathing patterns in the Kenanga Room BLUD RSU Banjar City. The intervention and implementation used to overcome the problem of ineffective breathing patterns is by giving breathing relaxation exercises for 10 minutes when complaints of shortness of breath are felt. Evaluations carried out include the response and frequency of the client's breath reduced after being given a deep breathing relaxation intervention. And for the documentation carried out, namely recording the implementation time, and recording all the results of the documentation of each action taken and evaluated clearly and in detail.

Results

The patient named Mr. T is married, 67 years old, a Muslim man who lives in Kawasen, Banjarsari. On May 27, 2023 at 12.30 WIB the patient was taken to the BLUD emergency room at the Banjar City General Hospital and was treated in the Kenanga Room with complaints of shortness of breath. At the time of review on Tuesday 30 May 2023 at 08.00 WIB the patient complained of shortness of breath, shortness of feeling like being squeezed, shortness of breath that increases when doing activities and decreases when resting. Shortness is felt to disappear. Patients also report weakness, decreased appetite, nausea and dizziness. Nursing problems that arise are Ineffective Breathing Patterns and Activity Intolerance. The intervention and implementation used to reduce shortness of breath is by giving breathing relaxation exercises for 10 minutes when complaints of shortness of breath are felt. After the intervention, the client's breathing frequency decreased from 28 x/minute to 22 x/minute, while the subjective data from the anamnesis showed that the client said shortness of breath was reduced.

Discussion

This discussion contains a review of the nursing care process that has been carried out on clients and the gaps between the theory obtained and the reality that occurs in the field, starting from the assessment stage to the evaluation. The nursing care process has been carried out on Mr. T with CHF in the Kenanga Room at the Banjar City Hospital from May 30 to June 2, 2023. In carrying out nursing actions, the writer adjusts to the conditions, situation and abilities of the client. The problem raised by the author is nursing care for Congestive Heart Failure clients who experience ineffective breathing patterns. Assessment is the initial stage of a nursing process carried out to collect client data. However, previously the author made an approach in advance with the family to explain the intent and purpose. After obtaining approval, the authors carry out nursing care and collect subjective and

objective data which will later be used as a reference for determining problems and considerations for enforcing nursing diagnoses. Based on the results of the study on Tuesday 30 May 2023 at 08.40 the client said he had shortness of breath. Patients say that shortness of breath feels like being squeezed, felt when doing activities and decreases during rest, the nature of shortness of breath comes and goes. When examined the patient also said dizziness, nausea and weakness.

At the time of physical examination it was found that the client's condition looked weak, composmentis awareness, GCS 4-5-6, CRT <2 seconds felt warm, stomach appeared bloated, there was no tenderness, bowel sounds 15x/minute, attached NS infusion with 10 drops minute drops. Blood pressure 120/70 mmHg, pulse 82 x/minute, temperature 36.2 ˚C, Respiration 28 x/minute and oxygen saturation 98%. Laboratory examination revealed platelets 219 10^3uL, hematocrit 36%, hemoglobin 11.7 g/dl, leukocytes 6.1 10^3uL, chest examination with cardiomegaly and EKG sinus arrhythmia. In some patients who experience Congestive Heart Failure (CHF), the majority do experience impaired breathing patterns. And the data found was obtained by the client who was studied by the author experiencing shortness of breath. This happens because there is a buildup of fluid in the interstitial cavity and alveoli of the lung. This fluid will inhibit the development of the lungs so that you experience difficulty breathing. Not only that, several other factors such as obesity, presence of lung infections and psychological distress can be a factor in the occurrence of shortness of breath in CHF patients. The author is of the opinion that the tightness experienced by Mr. T based on in-depth studies on the patient is the patient's smoking habit. Smoking habits can cause coronary heart disease which will eventually lead to heart failure. This is due to the types of chemicals contained in cigarettes starting from the manufacturing process to burning when inhaled by active smokers. The types of chemicals that cause CHD are nicotine levels which can make the heart beat faster than normal and carbon monoxide which can block the supply of oxygen to the heart.

After conducting a study on Mr. T based on the results of data analysis, the next step is determining the diagnosis, not all nursing diagnoses appear based on theory and those found during field assessments. Diagnoses that may emerge based on theory include: Impaired gas exchange related to changes in alveolar-capillary membranes, Ineffective breathing patterns related to respiratory effort difficulties, Decreased cardiac output related to changes in preload/afterload/contractility, Acute pain related to physiological injury, Hypervolemia related to impaired regulatory mechanisms, ineffective peripheral perfusion related to decreased arterial and venous flow, activity intolerance related to weakness, anxiety related to lack of exposure to information, nutritional deficit related to inability to digest food and risk of impaired skin integrity related to excess fluid volume. The diagnoses that emerged based on the analysis of data from the results of the study were ineffective breathing patterns associated with decreased respiratory function and activity intolerance associated with weakness. No discrepancies between theory and nursing problems were found at the time of assessment. The problem of ineffective breathing patterns and activity intolerance was raised as a problem/nursing diagnosis based on a review of the patient's

complaints. The following are several diagnoses based on theories that may appear but were not raised/found by the author, namely Impaired gas exchange associated with changes in the alveolar-capillary membrane, Acute pain associated with physiological injury, Hypervolemia associated with impaired regulatory mechanisms, Ineffective peripheral perfusion associated with decreased arterial and venous flow, Anxiety related to lack of exposure to information, Nutritional Deficit related to inability to digest food and Risk for impaired skin integrity related to excess fluid volume.

Based on the data above, the authors did not find several diagnoses related to the limited time in the study and incomplete sources or data that support the diagnosis, so that it is also limited for the authors in considering the diagnosis. Usually the priority diagnoses that arise in CHF cases are impaired gas exchange which is characterized by abnormal blood gas analysis (AGD) results and acute pain related to chest pain experienced by the patient. However, based on the analysis of the data the authors found that there were no complaints of chest pain experienced by the patient, even though the results of the ABG examination were attached but not sufficient to support the diagnosis of impaired gas exchange, because it was only a disorder of the breathing pattern caused by the edema experienced by the patient then the patient's workload before the patient was admitted to the hospital and the patient's smoking habit which ultimately caused the patient's breathing pattern to be disrupted and the author appointed a diagnosis of ineffective breathing pattern.

At the planning stage the authors apply all interventions based on theory and some literature that contains nursing action plans in accordance with nursing diagnoses. In accordance with predetermined limits, this is limited to nursing care of patients experiencing Congestive Heart Failure (CHF) with ineffective breathing patterns. The interventions given are monitoring breathing patterns (frequency, depth, respiratory effort), monitoring additional breath sounds (eg gurgling, wheezing, weezing, dry crackles), semi-Fowler's or Fowler's positions, suggest deep breathing relaxation, give warm drinks, give oxygen, if necessary. The interventions that the author provides are in accordance with the main complaints and signs and symptoms or problems experienced by the client. The interventions provided include monitoring breathing patterns to determine the extent of the patient's breathing pattern or ineffectiveness, monitoring additional breath sounds to determine the level of shortness experienced by the patient, semi-fowler position to provide comfort to the patient, because usually someone who experiences shortness of breath will feel comfortable when given semi-Fowler's position, suggest deep breathing relaxation to provide relaxation and teach the patient to manage breathing patterns independently to help reduce shortness of breath, give warm water to drink to relax the patient and give oxygen if necessary to reduce the tightness experienced by the patient. One of the interventions that the authors focus on to overcome the problem of ineffective breathing patterns is by providing deep breathing relaxation non-pharmacological techniques.

Furthermore, operationally, the author has no difficulties in carrying out nursing care, the availability of adequate facilities and facilities is supported by the openness of clients and families in receiving care services, making it easier for the writer so that the implementation in accordance with the action plan that has been prepared runs smoothly. Barriers to implementing and assessing progress records are not perfect for 24 hours. This is due to time and manpower limitations. The author in this case works closely with room nurses and tries to involve the family to participate in carrying out nursing actions. Some of the actions carried out by the author are in accordance with what was previously planned, namely monitoring and assessing breathing with the results: 28x/min, monitoring additional breath sounds with results: no additional breath sounds heard, positioning semi-Fowler with results: patients and families understand and position the patient's condition as recommended, teaching non-pharmacological techniques (deep breathing relaxation) with the results: after doing deep breathing relaxation exercises for 10 minutes the patient appears to be able to regulate his breathing, recommends drinking warm with the results: the patient and family comply with the recommendations, provide O2 (nasal cannula) 2 - 3lpm with results: the patient seemed to improve slightly when he was given O2. The focus of action on Congestive Heart Failure with the problem of ineffective breathing patterns is to take one of the non-pharmacological techniques, namely deep breathing relaxation which is done for 10 minutes. This action can be done by the patient independently to manage his breathing pattern and is done when shortness of breath is felt.

Evaluation is the final stage of the nursing process which continues with assessing the effects of nursing actions that have been given to clients. There are two ways to evaluate the qualifications of nursing actions. The first is a summative evaluation, where there are obstacles due to limitations in monitoring the client's condition which is not perfect. This evaluation was carried out on May 31 2023 where the problems experienced by the client could not be resolved, the client said that he still had tightness that felt squished, and the patient still felt weak and shortness of breath came and went when the patient had a lot of activities. The second method is a formative evaluation by monitoring client progress notes which was carried out on May 31-June 2 2023 showing good results. The results of the intervention by providing deep breathing relaxation which was carried out for 10 minutes within 3 days, that is, before the action was taken the patient said shortness of breath, the patient said the shortness of breath got worse when there were lots of activities. The author always evaluates after giving the intervention. On the last day the authors conducted an evaluation and found that the patient was no longer experiencing shortness of breath, and was able to carry out his activities independently.

Conclusion

Nursing care for patients with congestive heart failure (CHF) with shortness of breath is well managed. Providing deep breathing relaxation interventions is effective in reducing respiratory frequency.

Acknowledgement

The author would like to thank the head of the BLUD Kenanga Room, RSU Banjar City, who has provided facilities for the smooth delivery of implementation to patients with Ineffective Breathing Pattern nursing problems. The researchers also thank the patient Mr. T and his family for their willingness to participate in the implementation of this case study.

Daftar Pustaka

1. Blesinki, M., Suza, D. E., & Tarigan, M. (2022). Pengalaman Pasien Penyakit Ginjal Kronik yang Menjalani Hemodialisis dalam Mengikuti Asupan Diet dan Cairan: Studi Fenomenologi. *Journal of Telenursing (JOTING)*, *4*(2), 968–987.
2. Dinas Kesehatan Kota Tasikmalaya. (2018). *Profil kesehatan Kota Tasikmalaya*.
3. Fadhila, W., & Handayani, A. (2022). PERBEDAAN KARAKTERISTIK PASIEN CHF (CHRONIC HEART FAILURE) PADA USIA DEWASA DAN USIA LANJUT SERTA HUBUNGANNYA DENGAN KEMATIAN SELAMA PERAWATAN. *JURNAL ILMIAH SIMANTEK*, *6*(3), 53–57.
4. Kementrian Kesehatan RI. (2020). kemenkes RI. *Petunjuk Teknis Pelayanan Puskesmas Pada Masa Pandemi*.
5. Lippi, G., & Sanchis-Gomar, F. (2020). Global epidemiology and future trends of heart failure. *AME Med J*, *5*(15), 1–6.
6. Megasari, A. L. (2022). 2.4 Asuhan Keperawatan dengan masalah kesehatan kardiovaskuler. *Keperawatan Kegawatdaruratan Dan Manajemen Bencana*, 19.
7. Nirmalasari, N. (2017). Deep Breathing Exercise and Active Range of Motion Effectively Reduce Dyspnea in Congestive Heart Failure Patients. *NurseLine Journal*, *2*(2), 159–165.
8. Nurhayati, N., Andari, F. N., Fredrika, L., Wijaya, A. K., & Yanti, L. (2022). Upaya Peningkatan Aktifitas Fisik Melalui Latihan the Six-minute Walk Pada Penderita Gagal Jantung. *Jurnal of Community Health Development*, *3*(1), 34–39.
9. Rahmat, A. S. (2018). FACTORS ASSOCIATED WITH THE OCCURRENCE OF PREVENTION EFFORTS TO HEART FAILURE IN CLIENTS HYPERTENSION AT RSUD BEKASI 2017. *Jurnal Ilmiah Keperawatan*, *7*(1).
10. Rahmatiana, F., & Clara, H. (2019). Asuhan Keperawatan Pada Pasien Tn. A Dengan Congestive Heart Failure. *Buletin Kesehatan: Publikasi Ilmiah Bidang Kesehatan*, *3*(1), 7–25.
11. Riskesdas. (2018). *Hasil Utama Riskesdas 2018*.
12. Rispawati, B. H. (2019). Pengaruh Konseling Diet Jantung Terhadap Pengetahuan Diet Jantung Pasien Congestive Heart Failure (CHF). *Real in Nursing Journal*, *2*(2), 77–85.
13. Siregar, C. T. (2020). *Buku ajar manajemen komplikasi pasien hemodialisa*. Deepublish.
14. Tanzila, M., Susyanti, D., & Pratama, M. Y. (2022). Pendidikan Kesehatan Tentang

Diet Jantung Pada Pasien CHF (Congestive Heart Failure). *Jurnal Keperawatan Flora*, *15*(1), 47–53.

15. Utami, N., Haryanto, E., & Fitri, A. (2019). Fatigue pada Pasien Gagal Jantung di Ruang Rawat Inap Rsau Dr. M. Salamun. *Jurnal Ilmiah JKA (Jurnal Kesehatan Aeromedika)*, *5*(2), 63–71.
16. World Health Organization. (2020). WHO reveals leading causes of death and disability worldwide: 2000–2019. *World Health Organization (WHO)*, *1*.