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IMPLEMENTATION OF SDKI AND SIKI IN COPD PATIENTS WITH NURSING PROBLEMS INEFFECTIVE AIRWAY CLEARANCE

IMPLEMENTASI SDKI DAN SIKI PADA PASIEN PPOK DENGAN MASALAH KEPERAWATAN AIRWAY CLEARANCE INEFEKTIF

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ABSTRACT

Background: Ineffective airway clearance is one of the nursing problems that cause a decrease in health quality in COPD patients. Nurses need evidence-based nursing practice to enforce and overcome the nursing problem of ineffective airway clearance quickly and precisely.

Purpose: This study aims to identify the signs and symptoms of major/minor ineffective airway clearance in COPD patients and identify the implementation of independent nursing actions to overcome these problems.

Methods: This study uses a descriptive research design with a secondary data analysis approach that comes from the nursing care documentation of 22 respondents in 12 final project reports for the D3 Nursing Study Program FKEP UNEJ Campus Lumajang in the period 2018 to 2020. Data on major/minor signs and symptoms, as well as the implementation of independent nursing actions (based on SDKI and SIKI) identified, are presented in the distribution table for further discussion.

Results: The major signs that always appeared in all respondents included: excessive sputum and additional breath sounds, and minor signs included: dyspnea and change in respiratory rate (95% of respondents). Implementation of independent nursing actions includes: giving a semi-fowler/fowler position (91% of respondents), practicing effective coughing techniques (77% of respondents), giving warm drinks (68% of respondents), doing chest physiotherapy (59% of respondents), giving oxygen therapy (36% of respondents), providing fluid intake of 2000 ml/day (18% of respondents).

Conclusion: The results of this study become clinical evidence-based information that nurses can implement to increase success in caring for COPD patients with ineffective airway clearance in hospitals.
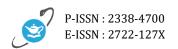
Keywords: COPD; Ineffective Airway Cearance; SDKI; SIKI

ABSTRAK

Latar Belakang: *Bersihan jalan napas tidak efektif merupakan salah satu masalah keperawatan yang menyebabkan penurunan kualitas kesehatan pada pasien PPOK. Perawat membutuhkan praktik keperawatan berbasis bukti untuk menegakkan dan mengatasi masalah keperawatan bersihan jalan napas yang tidak efektif dengan cepat dan tepat.*

Tujuan: *Penelitian ini bertujuan untuk mengidentifikasi tanda dan gejala mayor/minor masalah keperawatan bersihan jalan napas tidak efektif pada pasien PPOK serta mengidentifikasi pelaksanaan tindakan keperawatan mandiri untuk mengatasi masalah tersebut.*

Metode: *Penelitian ini menggunakan desain penelitian deskriptif dengan pendekatan analisis data sekunder yang berasal dari dokumentasi asuhan keperawatan sebanyak 22 responden dalam 12 laporan tugas akhir Program Studi D3 Keperawatan FKEP UNEJ Kampus Lumajang pada periode 2018 s/d 2020.*

Data tanda dan gejala mayor/minor, serta pelaksanaan tindakan keperawatan mandiri (berdasarkan SDKI dan SIKI) yang teridentifikasi, disajikan dalam tabel distribusi untuk diskusi lebih lanjut.

Hasil*: Tanda-tanda utama yang selalu muncul pada semua responden termasuk: sputum berlebih dan suara napas tambahan, serta tanda-tanda minor: dispnea dan perubahan laju pernapasan (95% responden). Pelaksanaan tindakan keperawatan mandiri meliputi: pemberian posisi semi-fowler/fowler (91% responden), praktik teknik batuk efektif (77% responden), pemberian minuman hangat (68% responden), melakukan fisioterapi dada (59% responden), pemberian terapi oksigen (36% responden), pemberian asupan cairan 2000 ml/hari (18% responden).*

Kesimpulan: *Hasil penelitian ini menjadi informasi berbasis bukti klinis yang dapat diterapkan perawat untuk meningkatkan keberhasilan dalam merawat pasien PPOK dengan masalah keperawatan bersihan jalan napas tidak efektif di rumah sakit.*

Kata kunci: *Bersihan Jalan Napas Tidak Efektif; PPOK; SDKI; SIKI*
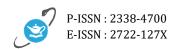
INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a non-communicable disease with 3.23 million deaths in 2019 and is the third leading cause of global health problems,[1] in 5 (five) provincial hospitals in Indonesia (East Java, West Java, South Sumatra, and Lampung) in 2008, it was found that COPD was the first contributor to the morbidity rate (35%), followed by bronchial asthma (33%), and lung cancer (30%). COPD is a long-term disease that affects the lungs. Most - COPD sufferers are smokers and middle-aged. This disorder causes difficulty breathing because sputum blocks the flow of air from the lungs. The prevalence of smoking in the population aged 10-18 years increased from 7.2% in 2013 to 9.1% in 2018. In Bali, the prevalence of smoking increased from 20% in 2013 to 23.5% in 2018.[1] Cigarette smoke is the main risk factor for COPD. The more a person is exposed to pollutants, the easier, and faster they get chronic respiratory diseases.[2] According to the Indonesian Health Ministry, the symptoms of COPD include; chronic cough with/without mucus that does not go away, shortness of breath, weakness, frequent lung infections, and weight loss. Airway blockage in the form of a secret causing airway clearance is not effective is a sign that is often experienced by COPD patients.[3]

The role of nurses in providing care is an important component of the healthcare system.[4] At the nursing diagnosis stage, nurses apply critical thinking methods to accurately enforce nursing problems. Experience shows that nurses often have difficulty identifying the specific nursing diagnosis a patient is experiencing.[5] This may be because the nursing assessment is not well structured. Nursing diagnosis has been practiced in various hospitals and other health institutions, but the nurse's understanding of the parameters for diagnosis still needs to be improved so that the process of establishing a diagnosis can be carried out correctly and standardized and not judged to be difficult. Without standardized parameters, the selection of nursing problems becomes non-uniform, inaccurate, and unclear, resulting in incorrect enforcement of nursing diagnoses and inaccuracies in nursing care performed on clients.[6] Nursing diagnosis is as important as a medical diagnosis and has the same legal and legal aspects, therefore nursing diagnosis is key for nurses to enforce a nursing plan for the patients they treat.[7]

A form of nursing self-intervention for COPD patients is airway clearance management: offering respiratory exercise education and rehabilitation programs. These breathing exercises include breathing exercises and practices used to achieve controlled ventilation, more efficiently and with little breathing work.[8] Some of the interventions used in patients with ineffective airway clearance are positioning semi-flower patients, providing effective cough therapy, advocating drinking warm water, teaching patients deep breathing techniques, and performing chest clapping physiotherapy. Effective management to help the expenditure of secretors who cannot get out is to use effective clapping and cough techniques.[9]

Evidence-based practice nursing related to the enforcement of nursing problems and the implementation of nursing to address nursing problems that arise in COPD patients is expected to be a solution for nurses in enforcing specific nursing problems and determining nursing interventions quickly and appropriately in COPD patients. Although it is considered important, the absence of studies that discuss evidence-based nursing practices related to the enforcement of nursing problems and the implementation of nursing in COPD patients attracted the author to conduct a study with the title Implementation of

SDKI and SIKI in COPD Patients with Nursing Problems Ineffective Airway Clearance.

RESEARCH METHOD

This study used a descriptive research design with a secondary data analysis approach conducted in the period 07 – 09 September 2022. Secondary data comes from the final project report of students from the Diploma Nursing Study Program FKep UNEJ Lumajang Campus, which was selected based on the following criteria:

a. Taking the topic of nursing care in COPD patients with airway clearance problems is ineffective;

b. The final project report was prepared in the period from 2018 to 2020;

c. Obtain permission from the main author to use the data listed in the final project report.

The results of the selection obtained 12 final project reports which were carried out further data mining regarding major and minor data on nursing problems with the ineffectiveness of airway clearance that often appears in COPD patients and nursing interventions that are often carried out to overcome nursing problems with the ineffectiveness of airway clearance. The author uses the documentation method through recording on the observation sheet in the form of a checklist to collect data. The data that had been collected is then tabulated according to the data group for descriptive analysis and discussion.

RESULTS

The analysis on 12 reports of the final project of nursing care in COPD patients with nursing problems with the ineffectiveness of airway clearance are described in Table 1 to Table 5 below.

Table 1. Distribution of Mayor Signs and Symptoms of Ineffective Airway Clearance

Major Signs and Symptoms (Objective Data)	Frequency	Percentage
Excess sputum	22	35%
Wheezing, and/or dry rhonchi	22	35%
Cough is ineffective	19	30%

The results of Table 1 showed that 3 signs of major symptoms that are often complained about by the patient are 35% experiencing excess sputum and wheezing, wheezing, and/or dry rhonchi, and 30% having an ineffective cough.

Table 2. Distribution of Minor Signs and Symptoms of Ineffective Airway Clearance; Subjective Data

Minor Signs and Symptoms (Subjective Data)	Frequency	Percentage
Dyspnea	21	70%
Orthopnea	5	17%
Hard to Talk	4	13%

The results of Table 2 showed that dyspnea symptoms are often encountered in the problem of ineffective airway clearance of COPD clients by keeping the first position by 70%.
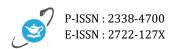
Table 3 Distribution of Minor Signs and Symptoms of Ineffective Airway Clearance; Objective Data

Minor Signs and Symptoms (Objective Data)	Frequency	Percentage
Breath Frequency Changes	21	37%
Breath Pattern Changes	19	33%
Restless	11	19%
The Sound of Decreasing Breathing	6	11%

From the Table 3, it can be found that the minor signs and symptoms in the objective data of ineffective airway clearance that clients often complain about are the frequency of breathing changes by 37%.

Table 4 Airway Management Action Plan Distribution

Intervention/ Action Plan	Frequency	Percentage
Observation		
Monitor breath patterns (frequency, depth, breath effort)	22	100%
Monitor additional breath sounds (e.g. gurgling, wheezing, dry rhonchi)	22	100%
Therapeutic		
Position the semi-fowler or fowler	20	91%
Give a warm drink	15	68%
Perform chest physiotherapy, if necessary	13	59%

Provide oxygen, if necessary	8	36%
Education Recommend fluid intake of 2000 ml/day, if not contraindicated	4	18%
Teach effective cough techniques	17	77%
Collaboration Collaboration on the administration of bronchodilators, expectorants, mucolytics, if necessary	18	82%

From the Table 4, five interventions were obtained that are often carried out, namely a breath pattern monitor (frequency, depth, breath effort) and an additional breath sound monitor (e.g. gurgling, wheezing, wheezing, dry ronchi) as much as 100%, positioning the semi-fowler or fowler as much as 91%.

Table 5. Distribution of Additional Action

Additional Interventions	Frequency	Percentage
Honey Feeding	2	40%
ACBT Technique	1	20%
Lime Juice	1	20%
Pomegranate Leaf Squeeze	1	20%

The results of the Table 5 show that honey administration keeps the first position of additional interventions that are often carried out in COPD patients with ineffective airway clearance nursing problems by 40%, while the ACBT (Active Cycle Breathing Technique), the administration of lime juice, the administration of pomegranate leaf juice obtained a percentage of 20%.

DISCUSSION

Limitations of Major Characteristics on Objective Data

In Table 1 it is found that major signs and symptoms in the objective data of airway clearance are not effective, consisting of 5 components including excess sputum, wheezing, wheezing, and/ or dry ronkhi, ineffective cough, incapable of coughing, meconium in the airway (in neonates).[10] The results of the data showed that 3 signs of major symptoms that often appeared included 35% experiencing excess sputum an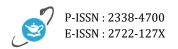d wheezing, wheezing, and /or dry ronchi, and 30% having an ineffective cough. According to the author's assumption that the 3 components often appear because they are the main symptoms of COPD clients. States that high levels of inhale oxygen can affect the increase in arterial PO_2, so that in severe acute hypoxemia (arterial oxygen saturation <85%), COPD patients experience coughing and chronic shortness of breath, as well as caused by thick mucous deposits that cause airway obstruction to be inadequate.[3] Thick and dense mucus causes airway obstruction which causes inadequate oxygen supply, which leads to a decrease in oxygen saturation.[2]

According to the author's opinion from the objective data above, it was found that the client did not have 2 of the 5 signs of major symptoms, namely inability to cough and meconium in the airway (in neonates). This is because the client's age has been mature to middle-aged so he does not experience meconium in the airway which usually occurs in neonates. Neonatal Meconium Aspiration Syndrome (SAM) is a respiratory disease in infants of moderately months characterized by symptoms of hypoxia, hypercapnia, and acidosis.[11]

Signs of Minor Symptoms in Subjective Minor Data

From the Table 2 it is found that minor signs and symptoms in the subjective data of ineffective airway clearance, consisting of 3 components including dyspnea, orthopnea, and speech difficulty. Symptoms that often occur can be see in the table, namely dyspnea on airway clearance problems in COPD clients ineffective by maintaining the first position by 70%, then orthopnea by 17%, and difficulty speaking by 13%. According to the author's assumptions, dyspnea is often experienced by clients because most COPD patients experience airway obstructiveness which causes clients to complain of shortness of breath, and dyspnea is the main complaint of most COPD clients, this is supported by the theory of Rosyadi et al, (2019) shortness of breath due to weakness of the respiratory muscles occurs due to less than optimal expiratory. Expiratory in COPD patients because airway obstruction interferes with the movement of air in and out of the lungs.

According to the author's assumption, difficulty speaking is a sign of the least complained of symptoms because the patient is in a position of not doing activities. Physiological shortness of breath occurs when COPD patients perform activities or exercise, resulting in increased expiratory nerve activity in the diaphragm throughout the cerebral cortex and bulbo-pontinous parts of the brain, increasing chemoreceptor reflexes due to abnormalities

during alveolar ventilation/perfusion and oxygen desaturation, and increased contractility of the respiratory muscles due to a decrease in the elasticity of the lungs.[12]

Signs of Minor Symptoms on Objective Data

Based on Table 3, it is known that minor signs and symptoms in the objective data of ineffective airway clearance consist of 5 components, including changes in respiratory frequency, changes in breathing patterns, anxiety, decreased breath sounds, and cyanosis.[10] Based on the results of the table 3, the minor signs and symptoms in the objective data that clients often complain about are the frequency of breathing changes by 37%. According to the author's assumption, this is because the COPD client has an obstruction in the airway so the client's breathing frequency becomes faster or tachypnea. Increase in respiratory frequency or RR is a form of compensation for the small airway volume.[13]

Cyanosis is a sign of symptoms that are rarely or even not complained by COPD clients because the client's disease phase is still in its early stages and symptoms are handled appropriately and quickly so that they do not cause a lack of oxygen in the tissues that cause to cyanosis. Oxygen is a gaseous component and a key factor in metabolic processes to maintain the survival of all cells of the body. This element is usually obtained by drawing in indoor air every time it breathes so that oxygen enters the tissues of the body.[14] Patient of COPD will experience hypoxemia due to the condition of decreasing oxygen concentration in arterial blood, hypoxemia can occur if there is a decrease in oxygen in the air (hypoxia) or hypoventilation occurs due to decreased lung tension or atelectasis, the second complication is respiratory acidosis arising from the increase in $PaCO_2$ (hypercapnia) signs that appear include headaches, fatigue, lethargy, dizziness, and tachypnea. Respiratory acidosis can occur due to the presence of respiratory center depression, for example (due to medication, anesthesia, neurological diseases) abnormalities or diseases that affect muscles or walls chest, a decrease in gas exchange area, imbalance of perfusion ventilation, and airway obstruction.[14]
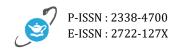
Airway Management Interventions

Based on Table 4, it is found that airway management interventions include observation, therapeutics, education, and collaboration. Observation: monitor breath patterns (frequency, depth, airway effort), monitor additional breath sounds (e.g. gurgling, wheezing, wheezing, dry rhonchi), monitor sputum (amount and color).[15]

Therapeutic: maintain airway patent with head-tilt and chin-lift (jaw thrust if suspected of cervical trauma), position the semi-fowler or fowler, give warm drinks, perform chest physiotherapy, perform mucus sucking for less than 15 seconds, perform hyperoxygenation before endotracheal suction, remove the blockage of objects on with McGill forceps, give oxygen.[15] Education: recommend fluid intake 2000 ml/day, if not contraindicated, teach effective cough techniques. Collaboration: collaboration on bronchodilator administration, expectorants, mucolytics.[15]

Based on the results of Table 4, five interventions were obtained that are often applied, namely a breath pattern monitor (frequency, depth, breath effort) and an additional breath sound monitor (e.g. gurgling, wheezing, wheezing, dry rhonchi) of 100%, positioning a semi-fowler or fowler as much as 91%, pursuing an effective cough technique of 77%. According to the author's assumptions, the breath pattern monitor and additional breath sound monitor (e.g. gurgling, wheezing, wheezing, dry ronchi are often applied because the main symptoms of COPD clients include coughing, chronic shortness of breath, airway obstruction are inadequate, so it is important to monitor breathing patterns and breathing sounds before or after the procedure to assess the client's condition and find out the effectiveness of the therapy and treatment carried out. This is in line with the breathing rate or RR is an attempt to compensate for the small volume of inspiration. In COPD patients, respiratory problems become more frequent, as lung function worsens and the development of disease, the risk of hypoxia or lack of oxygen supply to the cells and tissues of the body to carry out their normal functions will also increase. Symptoms hypoxia, include short/rapid breathing and tachycardia.[16] The basic principle, of airway management and monitoring, helps to ensure and patent the airway and ventilation support to maintain spontaneous breathing to maximize pulmonary gas exchange.[17]

Additional Interventions that can be used

Based on the results of Table 5, it was found that additional interventions carried out in COPD patients with ineffective airway clearance nursing problems were including honey administration, ACBT techniques, lime juice, and squeezing pomegranate leaves. Honey administration is an additional intervention that is often done because honey can reduce hypersecretion more effectively in COPD patients than the other 3 additional interventions. Honey has a broad spectrum, antimicrobial against a large number of gram-positive & gram-negative bacteria. Honey has a substantial impact related to using anti-viral, antimicrobial, antioxidant & anti-inflammatory,

which helps in repairing lung cells. Honey can reduce hypersecretion, infections, metaplasia of airway mucosal cells, and emphysematous lesions.[18]

CONCLUSION

Signs and symptoms that often appear to establish a nursing diagnosis of ineffective airway clearance in COPD patients are ineffective cough, excessive sputum, additional breath sounds, frequency of change of breath, changing breathing patterns, and dyspnea. Interventions that can be done to patients are providing a flower/semi-flower position, providing warm water drinking, teaching effective cough techniques, providing deep breath therapy, and chest physiotherapy.

RECOMMENDATION

1. For subsequent researchers, it is hoped that when conducting data mining, it involves research sources such as Final Project Report with more respondents so that the results of studies that discuss evidence-based nursing practices related to the enforcement of nursing problems and the implementation of nursing in COPD patients are more optimal.
2. For nurses, to be used as a reference in establishing a nursing diagnosis of ineffective airway clearance in COPD patients quickly and precisely by considering the dominant signs and symptoms that appear.
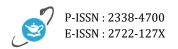
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