International Journal Of Health, Engineering And Technology (IJHET) *E-ISSN 2829 - 8683*
Volume 5, Number 2, July 2026, *Page. 2162 - 2170*
Email : editorijhess@gmail.com

Effectiveness Of Ventilatory Support Implementation To Address Ineffective Breathing Patterns In Children With Anaphylactic Shock Diagnosis At Porsea Regional General Hospital

Minar Lenny Situmorang[1)], Rifka Banjarnahor[2)], Natasya Sihombing[3)]
[1,2,3)] STIKES Arjuna. Kec. Laguboti. Kab. Toba

*Corresponding Author
E-mail: minarlennys@gmail.com

Abstract

Effectiveness of implementing ventilation support to address inefective breathing patterns with a diagnosis o anaphylactive shock in the room porsea regional hospital toba. Anaphylactic shock is an allergic reaction that can cause loss of consciousness or even death, this condition occurs when the patient is allergic to food, drugs, insect venom. This scientific objective aims to reduce ineffective breathing patterns by implementing nursing with the application of ventilation support in hospitals with anaphylactic shock. The method used to conduct Nursing Care is by approaching through data collection, analyzing data, and drawing conclusions. The results of this study show that the application of ventilation support can have an effect on overcoming ineffective breathing patterns in anaphylactic shock patients. So the conclusion of Nursing Care given to clients during the three days of treatment application of ventilation support can have an influence on reducing ineffective breathing patterns namely reduced tightness and breathing back to stable. It is recommended to give the family a semi-fowler position and use loose clothes if there is tightness in the child.

Keywords: ***Anaphylactic Shock, Ventilation Support.***

INTRODUCTION

Anaphylactic shock is a life-threatening condition caused by a severe systemic hypersensitivity reaction that occurs rapidly after exposure to an allergen. This condition is characterized by bronchospasm, airway edema, increased vascular permeability, and circulatory impairment that can lead to tissue hypoxia and acute respiratory failure. Anaphylactic shock can be acute and life-threatening, resulting from an exaggerated immune response to a specific allergen. This condition is characterized by cardiovascular and respiratory system disorders, including bronchospasm, airway edema, and decreased tissue perfusion. In children, anaphylactic shock is a life-threatening condition that requires rapid and appropriate treatment because it can lead to death within a short time if not treated promptly (World Allergy Organization, 2022). The prevalence of anaphylaxis worldwide in 2025 is estimated to be in the range of 1–3% of the global population, with a trend of increasing annually. This demonstrates that anaphylaxis is a significant global health problem, particularly due to its acute and potentially life-threatening nature. In Asia, respiratory emergencies due to anaphylactic reactions and shock remain a serious problem in emergency departments. Studies in several Asian hospitals indicate that acute respiratory distress is a leading cause of patients requiring ventilatory support, both non-invasive and invasive mechanical ventilation, to maintain oxygenation (Cardona et al., 2022 & WHO Asia-Pacific, 2023).

In Indonesia, data on the incidence of anaphylactic shock is still limited and generally comes from hospital studies. Research at Sanglah General Hospital, Denpasar, from 2018 to 2021 showed that of 115 cases of anaphylactic reactions, approximately 44.3% progressed to anaphylactic shock. This finding indicates that nearly half of anaphylaxis cases are of high severity, requiring immediate and intensive treatment. Furthermore, in the pediatric population, approximately 36.3% of anaphylaxis cases also progressed to anaphylactic shock, indicating that this condition can occur in various age groups (Arinata, I. G. A., & Suardamana, I. K. 2022). The incidence of adverse drug reactions ranges from 5% to 15% of outpatients, 25% of inpatients, and 20% to 30% of adverse reactions are due to drug allergies (Ministry of Health 2019). The incidence of anaphylactic shock in Toba Regency is

rare, data found by the author at Porsea Regional Hospital in January - March 2026 showed that 1 (0.28%) experienced anaphylactic shock.

In North Sumatra Province, emergency cases involving respiratory disorders remain a significant problem in the Emergency Department, particularly those causing airway obstruction, such as anaphylactic shock. Anaphylactic shock can cause bronchospasm, laryngeal edema, increased mucus secretion, and impaired gas exchange, leading to decreased oxygen saturation and ineffective breathing patterns. This condition requires rapid treatment through airway stabilization and ventilatory support to prevent respiratory failure (Ministry of Health of the Republic of Indonesia, 2022 & Hidayat et al. 2023).

In Toba Regency, North Sumatra Province, emergency cases involving respiratory system disorders remain a challenge in healthcare facilities, particularly the Emergency Department. Conditions such as anaphylactic shock can potentially cause airway obstruction due to bronchospasm, laryngeal edema, and increased mucus secretion, which can interfere with spontaneous ventilation. This condition leads to decreased oxygen saturation and carries the risk of ineffective breathing patterns and respiratory failure if not treated promptly and appropriately (Ministry of Health of the Republic of Indonesia, 2022 & Siregar et al. 2023).

One of the main nursing problems in patients with anaphylactic shock is an ineffective breathing pattern, characterized by shortness of breath, use of accessory muscles, an abnormal respiratory rate, and additional breath sounds such as wheezing or stridor. This disorder occurs due to narrowing of the airway and increased airflow resistance caused by bronchospasm and laryngeal edema. This condition disrupts gas exchange, thus preventing the body's oxygen needs from being optimally met. Management of anaphylactic shock includes pharmacological therapy such as the administration of epinephrine, antihistamines, and corticosteroids, as well as non-pharmacological therapy in the form of ventilatory support. Ventilatory support is a crucial intervention in maintaining airway patency and improving patient oxygenation. Ventilatory support can include oxygen administration, the use of breathing aids such as nasal cannulas or oxygen masks, and even mechanical ventilation in severe cases (Ministry of Health of the Republic of Indonesia, 2023).

Recent studies have shown that early and adequate ventilation support can improve oxygen saturation and reduce respiratory rate in patients with acute respiratory distress. Furthermore, research also suggests that appropriate ventilation interventions can improve the effectiveness of gas exchange and prevent further complications such as respiratory failure. Therefore, the implementation of ventilation support is a crucial component of nursing care for patients with anaphylactic shock experiencing ineffective breathing patterns (Sari, D. P., et al. 2022 & Rahmawati et al. 2024). Recent guidelines state that early interventions focused on airway stabilization and ventilatory support are crucial to prevent deterioration. Ventilatory support, including oxygen therapy and mechanical ventilation, if needed, has been shown to be effective in improving oxygen saturation and maintaining adequate gas exchange in patients with acute respiratory distress (WHO, 2024). Therefore, the implementation of ventilation support is an integral part of the management of patients with anaphylactic shock experiencing ineffective breathing patterns to reduce the risk of mortality and improve patient safety.

Nurses, as healthcare workers on the front lines of care, play a crucial role in the management of anaphylactic shock, particularly in the emergency department. This role includes the ability to conduct a rapid initial assessment, recognize the signs and symptoms of anaphylaxis, perform immediate interventions such as administering epinephrine, and continuously monitor the patient's condition. Furthermore, nurses are responsible for documentation, patient education, and collaboration with the medical team in further management (Panyiwi, R., Nursinah, N & Lestari, I. M. T. 2025).

RESEARCH METHODS

The research method used was descriptive research, a method that describes the characteristics of the population. The study was conducted from March 23 to March 26, 2026, at Porsea Regional General Hospital. The population in this study were all patients with respiratory disorders at Porsea Regional General Hospital. The sample was one patient with respiratory disorders at Porsea Regional General Hospital and anaphylactic shock. The focus was on the implementation of ventilation support, with demographic data collected from respondents and observations of the implementation of ventilation support to address breathing patterns in anaphylactic shock.

Primary data was collected by obtaining family consent to participate, explaining the questionnaire, how to complete it, its purpose, and clarifying statements. Secondary data was obtained by collecting data from Porsea Regional General Hospital.

The initial step in patient assessment was interviews with the patient and their family. The observation phase was then conducted by the researcher, observing what was seen and in conjunction with the patient and family's actions. The researcher also conducted a physical examination.

Establishing a nursing diagnosis is determining clinical decisions regarding patients obtained from the results of patient assessments in accordance with the theory of the PPNI DPP SDKI Working Group Team.

RESULTS AND DISCUSSION

A ventilation support application (VAP) is a computer-based system that assists healthcare professionals in making decisions related to mechanical ventilator settings, monitoring patient respiratory status, early detection of complications, and the weaning process (American Association for Respiratory Care, 2026).

The benefits of implementing a Ventilator Support Application include:

a) Assisting Clinical Decision-Making b) Improving Patient Safety

c) Reducing the Risk of Ventilator-Induced Lung Injury (VILI) d) Increasing Ventilation Effectiveness e) Reducing Healthcare Professional Workload

f) Improving Patient Monitoring Accuracy g) Supporting the Implementation of Evidence-Based Practice h) Assisting in Detecting Patient-Ventilator Asynchrony

The development of digital health technology has transformed critical care practices, particularly in the management of patients requiring mechanical ventilation. One rapidly developing innovation is the ventilator support application (or ventilator decision support system), a computer-based system designed to assist healthcare professionals in making decisions related to the management, monitoring, and evaluation of ventilation therapy. Theoretically, the ventilation support application serves as a tool that bridges the gap between complex clinical data and the need for rapid and accurate decision-making in intensive care settings. This system does not replace the role of doctors or nurses, but rather enhances clinicians' ability to analyze patient data and select the most appropriate ventilation strategy (Fritsch, S. J. & Cecconi, M 2025).

Ventilation support is a medical and nursing intervention aimed at assisting or replacing a patient's respiratory function to maintain adequate ventilation and oxygenation when the respiratory system is unable to function optimally. This intervention includes oxygen administration, non-invasive ventilation, and invasive mechanical ventilation, used in acute and chronic respiratory disorders. Ventilatory support also serves as a therapeutic strategy to increase alveolar ventilation and reduce dead space ventilation, thereby improving the efficiency of gas exchange in the lungs. This is particularly important in patients with critical conditions such as Acute Respiratory Distress Syndrome (ARDS), severe pneumonia, asthma exacerbations, or anaphylactic shock, which cause acute airway compromise (StatPearls, 2023).

Physiologically, ventilatory support is the process of air entering and exiting the lungs, influenced by respiratory muscle activity, intrathoracic pressure, and lung elasticity. When any of these components is disrupted, alveolar ventilation decreases, leading to ventilation-perfusion imbalance (V/Q mismatch), hypoxemia, and hypercapnia. In these conditions, ventilatory support is necessary to maintain adequate gas exchange and maintain physiological stability (West, 2022).

Clinically, ventilatory support is part of emergency management that focuses on maintaining the airway, improving oxygenation, and reducing the work of breathing. Mechanical ventilation, as a form of ventilatory support, plays a crucial role in maintaining gas exchange in patients experiencing respiratory failure or severe oxygenation impairment by providing positive pressure to assist in controlled inspiration and expiration (MSD Manuals, 2023).

The process of inhalation, or inspiration, is an active mechanism in the respiratory system that occurs due to changes in pressure within the thoracic cavity. Inhalation begins when the diaphragm and intercostal muscles contract, increasing the volume of the chest cavity. This increase in volume lowers intrathoracic and intra-alveolar pressures to below atmospheric pressure, allowing air to flow into the lungs following a pressure gradient. This mechanism is the basic principle of ventilation, as explained in the physical laws of respiration: air always moves from high pressure to low pressure (West & Luks, 2021).

The decrease in alveolar pressure during inspiration is generally about -1 cmH_2O below atmospheric pressure, which is sufficient to draw air into the alveoli. After air is inhaled, mixing occurs between the inspired air and the residual air in the alveoli from the previous cycle. This process causes the alveolar oxygen concentration to not immediately equal atmospheric air but to adjust until it reaches physiological equilibrium. Physiologically, the alveolar partial pressure of oxygen stabilizes at around ±100 mmHg, or approximately 13–14% of the gas concentration, maintained through a continuous balance between ventilation and gas diffusion (Guyton & Hall, 2021; West, 2022).

Oxygen continuously moves from the alveoli into the blood in the lungs, while new oxygen continues to enter the alveoli through ventilation. The faster oxygen diffuses into the blood, the lower the oxygen concentration in the alveoli. Conversely, the faster oxygen is taken into the alveoli from the atmosphere, the higher the oxygen concentration in the alveoli. Therefore, the concentration and partial pressure of oxygen in the alveoli are controlled by the balance between the rate of oxygen absorption into the blood and the rate of new oxygen intake through ventilation (West & Luks, 2021; Hall, 2021; Nieman et al., 2022).

The vast surface area of the alveolar walls (±80 m^2) and the very short diffusion distance make gas exchange highly efficient. After oxygen crosses the alveolar-capillary barrier into the pulmonary blood, it diffuses passively, with most (>98%) binding to hemoglobin in erythrocytes. The rate at which oxygen is taken up by the pulmonary capillary blood is known as the lung diffusing capacity. In normal lungs at rest, the time required for hemoglobin saturation with oxygen is only about 0.25 seconds, faster than the erythrocyte transit time in the pulmonary capillaries, which is approximately 0.75 seconds, providing adequate diffusion reserves. This process is supported by a pulmonary blood flow of approximately 5–6 L/minute with a capillary volume of approximately 70–75 mL. Diffusion equilibrium is achieved when the partial pressure of oxygen (PO_2) in the blood leaving the pulmonary capillaries approaches alveolar pressure (±100 mmHg), with a hemoglobin saturation level of approximately 97–98% according to the oxygen-hemoglobin dissociation curve (West & Luks, 2021; Hall, 2021; Wagner, 2022; Hyde et al., 2023).

According to guidelines from the American Association for Respiratory Care, ventilatory support is an intervention provided to assist a patient's breathing process, including invasive mechanical ventilation, noninvasive ventilation, supplemental oxygen therapy, or a combination of these modalities, with the goal of maintaining adequate oxygenation and ventilation. Ventilatory support is also an important intervention in addressing nursing problems such as ineffective breathing patterns (American Association for Respiratory Care, 2023; Sari, 2023; Scala & Heunks, 2022).

Ventilation support is a crucial intervention in the management of patients with respiratory disorders, aimed at maintaining adequate oxygenation and ventilation. According to the American Association for Respiratory Care, ventilation support encompasses various modalities, including invasive and noninvasive mechanical ventilation, as well as supplemental oxygen therapy, used according to the patient's clinical condition. The application of ventilation support offers various benefits, including improving tissue oxygenation by increasing the partial pressure of oxygen in the blood, thereby meeting cellular oxygen needs. Furthermore, ventilation support helps improve alveolar ventilation by increasing carbon dioxide elimination, thus maintaining the body's acid-base balance. This intervention also plays a role in reducing the work of breathing by decreasing the burden on respiratory muscles, thus preventing respiratory muscle fatigue in patients with respiratory distress. Ventilatory support helps maintain stable gas exchange in the alveoli and prevents hypoxia and more severe respiratory failure. By ensuring adequate oxygenation, vital organ function can be maintained and the patient's healing process can proceed more optimally (Scala & Heunks, 2022; American Association for Respiratory Care, 2023).

An additional benefit is maintaining airway patency, especially in patients with decreased consciousness or airway obstruction, so that airflow remains optimal. Furthermore, ventilatory support can also increase alveolar recruitment, opening collapsed alveoli (atelectasis), thereby expanding the gas exchange area and improving ventilation efficiency.

Ventilatory support also plays a role in optimizing the ventilation-perfusion ratio (V/Q ratio), resulting in a more balanced distribution of oxygen and blood flow in the lungs. Another benefit is assisting in the regulation of intrathoracic pressure, which can affect cardiac output and hemodynamic stability under certain conditions (Fan et al., 2022; Goligher et al., 2021).

The purpose of mechanical ventilation is to manipulate alveolar ventilation (VA) and partial pressure of carbon dioxide ($PaCO_2$), as well as improve oxygenation, as indicated by increased arterial oxygen saturation (SaO_2) and partial pressure of arterial oxygen (PaO_2). This is achieved by increasing functional residual capacity, increasing inspiratory lung volume, increasing alveolar ventilation, and increasing the fraction of inspired oxygen (FiO_2). Furthermore, mechanical ventilation also serves to reduce the workload of the respiratory system, particularly in addressing respiratory muscle fatigue, and helps stabilize the chest wall in conditions of severe injury to prevent worsening respiratory function (Goligher et al., 2021, American Association for Respiratory Care, 2023).

An ineffective breathing pattern is a condition where an individual experiences an inability to maintain adequate inspiration and expiration, resulting in inadequate ventilation. This condition can be actual or potential and is associated with changes in breathing patterns, such as increased respiratory rate, use of accessory muscles, or decreased depth of breath. In nursing practice, one independent intervention that can be performed to reduce shortness of breath is the semi-Fowler's position, which has been shown to help increase lung expansion and facilitate ventilation. This approach aligns with modern nursing diagnosis and intervention standards that emphasize optimizing respiratory function through position management and ventilatory support (Indonesian National Nurses Association, 2021 & Ministry of Health of the Republic of Indonesia, 2022).

Ineffective breathing pattern is a nursing problem related to impaired ventilation, a condition in which an individual experiences an inability to maintain an adequate breathing pattern to meet the body's oxygen needs (NANDA-I, 2021).

Ineffective breathing pattern is a condition characterized by an individual's inability to maintain an adequate inspiratory and expiratory pattern. This condition can be recognized by changes in

respiratory rate, depth, and rhythm and requires appropriate nursing intervention to prevent further complications (Herdman & Kamitsuru, 2021).

Ineffective breathing patterns refer to inspiration and/or expiration that do not provide adequate ventilation. The normal respiratory rate in adults is 16-24 breaths/minute (Hall, 2021 & Potter et al., 2022). Normal breathing is called eupnea. Changes in breathing patterns or abnormal breathing patterns can include:

Dyspnea, which is difficulty breathing. 2.Apnea, which is not breathing or stopping breathing.3.Tachypnea, which is breathing faster than normal. Bradypnea, which is breathing slower than normal. Kussmaul,which is breathing with equal expiratory and inspiratory durations, resulting in slow and deep breathing. Cheyne-Stokes, which is breathing that is fast and deep, then gradually shallow, followed by regularly recurring periods of apnea. Biot, which is breathing that is deep and shallow with irregular periods.

According to the SDKI DPP PPN Working Group (2021), the limitations of the pattern characteristics using oxygen support devices. Oxygen can be administered to patients in three ways: via cannula, nasal cannula, and mask, with the aim of meeting oxygen needs and preventing hypoxia.

Bronchodilator Administration

Bronchodilators are a group of medications used to relieve symptoms caused by airway narrowing, such as coughing, wheezing, or shortness of breath.

Nursing Management

Deep Breathing Exercises

Deep breathing exercises are a breathing technique used to improve alveolar ventilation or maintain gas exchange, prevent atelectasis, increase cough efficiency, and reduce stress.

Effective Coughing Exercises

Effective coughing exercises are a method for training patients who lack the ability to cough effectively to clear secretions or foreign objects from the larynx, trachea, and bronchioles.

Prenatal/Infancy (0-18/24 Months): The newborn to infancy stage, the development of basic skills such as motor skills, automatic responses, and early cognitive development.

Toddlerhood (1-3 Years): Children begin to walk, talk, and explore their environment. Preschool (3-5/6 Years): Often called the golden age, this period experiences a rapid surge in physical, social, and cognitive development.

Middle Childhood (6-12 Years): Children become more independent, physically active, and begin to think complexly. 5) Adolescence (12-18/20 Years): The transition from childhood to adulthood, the search for identity, and emotional maturity.

Anaphylactic shock, or anaphylaxis, is an acute, severe, and potentially life-threatening systemic hypersensitivity reaction that occurs due to the rapid release of inflammatory mediators from mast cells and basophils following exposure to an allergen. This condition is characterized by disorders of the respiratory, cardiovascular, skin, and gastrointestinal systems, which can progress to circulatory collapse and respiratory failure if not treated promptly. Clinically, anaphylaxis can appear within minutes to hours after antigen exposure, with manifestations such as bronchospasm, airway edema, hypotension, and distributive shock. Prompt and appropriate treatment is crucial to prevent mortality due to impaired oxygenation and tissue perfusion (World Allergy Organization 2022 & American Academy of Allergy Asthma & Immunology 2022).

Anaphylactic shock is the most severe clinical form of anaphylaxis, a rapidly occurring and potentially life-threatening type I (IgE-mediated) systemic hypersensitivity reaction. This condition is characterized by circulatory system failure caused by the massive release of inflammatory mediators (such as histamine and leukotrienes) from mast cells and basophils after exposure to a specific allergen. Physiologically, this shock causes extreme systemic vasodilation.

According to the Siloam Hospital medical team in 2023, symptoms of anaphylaxis usually appear suddenly and worsen over a short period of time. Patients with anaphylaxis require immediate

treatment within 30-60 minutes because the reaction can be fatal. Anaphylaxis is an allergic reaction that can affect many systems in the body, so the symptoms are quite varied.

Some common symptoms of anaphylaxis are as follows:

Dizziness, confusion, and loss of consciousness. Itchy rashes on the skin. Shortness of breath and wheezing. Swelling of the lips, tongue, and throat. Decreased blood pressure. Sneezing, coughing, and runny nose. Chest pain or tightness. Nausea, vomiting, and diarrhea. Heart palpitations but a weak pulse. Tingling sensation in the scalp.

The onset of anaphylaxis symptoms often follows a pattern. Patients may experience one or more of the following:a. Several symptoms occur simultaneously, such as a skin rash accompanied by swelling and vomiting.b. Several symptoms appear within minutes of exposure to or consumption of the allergen (allergy trigger).

Symptoms may appear one after another over several hours.d. After the initial symptoms disappear, they may return within 8-72 hours.

Discussion

After researchers demonstrated the effectiveness of ventilation support to address ineffective breathing patterns in An.F.S. at the Porsea Regional General Hospital, they obtained an assessment of An. F.S., who complained of shortness of breath, swelling of the lips, and the appearance of reddish patches all over her body, accompanied by itching and red spots. The child was short of breath with a respiratory rate of 32 breaths per minute, an irregular breathing pattern, 5 liters of oxygen, and an IV drip of 10 drops per minute.

Blood pressure was 90/60 mm Hg, HR 115 beats per minute, SpO2 84 beats per minute, and temperature 36.2 degrees Celsius.

The nursing diagnosis derived from the patient after the assessment was: Ineffective breathing pattern related to pharmacological agents, characterized by An. F.S said shortness of breath and dizziness, the child was short of breath after taking the medicine, the client looked short of breath, appeared to be using accessory muscles in breathing, swelling in the lip area, prolonged expiratory phase, appeared restless, irregular breathing pattern, attached to 5 liters of oxygen, Blood Pressure 90/70 mmHg, HR 115 times per minute, breathing 32 times per minute, SPO2 85 times per minute, Temperature 36.5 degrees Celsius. (SDKI DPP PPNI 2024 Working Group Team), Risk of impaired skin integrity related to changes in circulation characterized by the client saying itching all over the body, feeling hot on the skin. There are red spots all over the body, looks swollen on the lips, looks weak, restless. (SDKI DPP PPNI 2024 Working Group Team)

Nursing implementation for the diagnosis of "Ineffective Breathing Patterns Related to Pharmacological Agents," characterized by shortness of breath and dizziness, includes identifying accessory muscle fatigue, identifying the effect of position changes on respiratory status, monitoring respiratory status and oxygenation, providing a semi-Fowler's or Fowler's position, providing oxygenation as needed, and teaching the patient to change position independently.

Nursing implementation for the diagnosis of "Risk for Impaired Skin Integrity" related to altered circulation, characterized by itching all over the patient's skin, a feeling of heat, red spots, facial swelling, weakness, and restlessness. The diagnosis of anaphylactic shock includes identifying possible allergies, drug interactions, and contraindications, monitoring the therapeutic effects of the drug, washing hands and putting on gloves, implementing the six rights principle: patient, drug, dose, time, route, documentation, providing privacy, and applying topical medication to injured, irritated, or sensitive skin. Explain the type of drug, the reason for administration, the expected action, and side effects before administration, administering desoximetasone, dexamethasone injection 1 amp/8 hours, teaching patients and families about how to administer the drug independently.

After treatment from March 23 to March 26, 2026, nursing care was provided and progress notes were monitored. After four days of treatment for anaphylactic shock with a diagnosis of ineffective breathing patterns, the client reported no longer experiencing shortness of breath and dizziness. Respiration was 20 times per minute, SPO2 98%, and the client was placed in a semi-Fowler position

without using a nasal cannula. The nurse advised the patient to wear loose clothing and maintain a semi-Fowler position to facilitate breathing. The effectiveness of this action can be seen from the respiratory rate, which shows a normal figure of 18-30 times per minute in children aged 6-12 years (O.Author, 2023). The results of a nursing science study (2024) indicate that providing a semi-Fowler position to patients with anaphylactic shock can effectively reduce shortness of breath. This can be seen through the increase in patients with severe shortness of breath from before and after the semi-Fowler position, which increased to mild shortness of breath.

The risk of impaired skin integrity has improved with spots on the body appearing to have improved, the patient's face appears to be no longer swollen, the nurse teaches the family to apply topical medication at home. The client goes home with the doctor's recommendation to use desoximetasone ointment 2 times 1, cetirizine 2 times 1, vitamin B.Com 2 times 1, and omeprazole 2 times 1. The nurse advises the family to re-check the medication given by the health worker, the nurse advises the family to wash their hands before administering desoximetasone ointment. This is in accordance with the theory that says impaired skin/tissue integrity is skin damage. Impaired skin/tissue integrity is characterized by the presence of tissue or skin layers, pain, bleeding, redness, and hematoma (SIKI DPP PPNI 2024 Working Group Team.

CONCLUSIONS

The data analysis used to support the determination of the priority nursing diagnosis or primary nursing diagnosis for child F.S. with anaphylactic shock was an ineffective breathing pattern related to pharmacological agents. Meanwhile, another nursing diagnosis was impaired tissue integrity related to altered circulation. An ineffective breathing pattern is a condition where an individual experiences actual or potential loss of ventilation related to altered breathing patterns. Self-care measures taken to reduce shortness of breath include placing the patient in the semi-Fowler's position. Nursing care provided for three days with the patient maintained in the semi-Fowler's position to address the ineffective breathing pattern, thus resolving the ineffective breathing pattern and the shortness of breath.

The family understood the benefits of regularly maintaining the semi-Fowler's position. This was supported by family motivation, which encouraged the patient to maintain the semi-Fowler's position. The family also maintained desoximetasone ointment twice daily to address the red spots and swelling on the patient's lips. The red spots and swelling resolved. The family also gained greater control over the patient's sleep schedule, especially during the day, resulting in more efficient nighttime sleep and resolved sleep disturbances.

REFERENCES

American Academy of Allergy, Asthma & Immunology (AAAAI) (2022). Anaphylaxis Overview. https://www.aaaai.org

American Association for Respiratory Care (AARC) (2023). Clinical PracticeGuidelines. https://www.aarc.org/resources/clinical-practice guidelines/

Berman, A., et al. (2022). Kozier & Erb's Fundamentals of Nursing. https://www.pearson.com

Bulechek, G. M. (2024). Nursing Interventions Classification (NIC). https://www.elsevier.com

Cardona, V., et al. (2024). Updated Anaphylaxis Guidelines. https://pubmed.ncbi.nlm.nih.gov/

D. P. Sari, et al. (2022). Efektivitas Dukungan Ventilasi pada Pasien Respirasi. https://peraturan.bpk.go.id

Eka Ratnawati. (2023). Pengkajian Keperawatan Modern. Jakarta. Erikson, E. H. (2023). Childhood and Society. https://www.penguinrandomhouse.com

Fan, E., et al. (2022). Mechanical Ventilation in ARDS. https://jamanetwork.com/
Goligher, E. C., et al. (2021). Lung Protective Ventilation Strategies. Https://pubmed.ncbi.nlm.nih.gov/
Guyton, A. C., & Hall, J. E. (2021). Textbook of Medical Physiology (14th ed.). Elsevier. https://www.elsevier.com/books/guyton-and-hall-textbook-of-medical physiology
Hall, J. E. (2021). Guyton and Hall Medical Physiology Review. https://www.elsevier.com
Herdman, T. H., & Kamitsuru, S. (2021) NANDA International Nursing Diagnoses. https://nanda.org
Hidayat & Musrifatul. (2022). Buku Saku Prosedur Keterampilan Dasar Praktik Klinik. Buku Saku Prosedur Keterampilan Dasar Praktik Klinik - Musrifatul Uliyah, Aziz Alimul Hidayat - Google Buku,
Hidayat, et al. (2023). Gangguan Respirasi di IGD. https://journal kesehatan Indonesia. https://journal keperawatan Indonesia
Hyde, D. M., et al. (2023). Pulmonary Structure and Function. https://www.ncbi.nlm.nih.gov/
I.G. A. Arinata, & I. K. Suardamana. (2022). Gambaran Kasus Anafilaksis di RSUP Sanglah Denpasar. https://ojs.unud.ac.id
Kementerian Kesehatan Republik Indonesia. (2019). Pedoman Monitoring Efek Samping Obat. https://www.kemkes.go.id
Kementerian Kesehatan Republik Indonesia. (2022). Pedoman Nasional Pelayanan Kedokteran. https://www.kemkes.go.id
Kementerian Kesehatan Republik Indonesia (2023) Manajemen Kegawatdaruratan Respirasi. https://www.kemkes.go.id
Kementerian Kesehatan RI. (2022). Pedoman Nasional Pelayanan Kedokteran. https://www.kemkes.go.id
Kementerian Kesehatan RI. (2023). Kesehatan Anak dan Remaja. https://www.kemkes.go.id
Moorhead, S. (2022). Nursing Outcomes Classification (NOC). https://www.elsevier.com
MSD Manuals (2023). Overview of Mechanical Ventilation. https://www.msdmanuals.com/professional/critical-care-medicine/respiratory-failure-and-mechanical-ventilation
NANDA International. (2021). NANDA-I Nursing Diagnoses: Definitions & Classification. https://nanda.org
Nieman, G. F., et al. (2022). Alveolar Mechanics and Gas Exchange. https://pubmed.ncbi.nlm.nih.gov/
Nursalam. (2021). Manajemen Keperawatan. Jakarta: Salemba Medika. https://search-lib.ums.ac.id/cgi-bin/koha/opac-search.pl?q=an%3A96530
Pannyiwi, Nursinah, & I. M. T. Lestari. (2025). Peran Perawat dalam Penanganan Anafilaksis. https://journal keperawatan Indonesia
Pemerintah Indonesia. (2021). PP No. 78 Tahun 2021 tentang Perlindungan Anak.
Persatuan Perawat Nasional Indonesia (PPNI). (2021). Standar Diagnosis Keperawatan Indonesia (SDKI). Jakarta: DPP PPNI. https://ppni-inna.org
Potter, P. A., & Perry, A. G. (2023). Nursing Interventions. https://elsevier.com