CHAPTER 2

LITERATURE REVIEW

2.1. Pneumonia Concept

2.1.1. Understanding

Pneumonia is an inflammation of the lungs caused by infection of the air sacs (alveoli) in one or both lungs, known as pneumonia. In cases of pneumonia, the alveoli fill with pus and fluid, making it difficult for people with pneumonia to breathe. Symptoms are nonspecific, such as coughing and shortness of breath during strenuous activity, and are sometimes accompanied by fever. One group at high risk and susceptible to pneumonia is the elderly, aged 60 years and over. (Sartiwi et al., 2019) .

Pneumonia is an acute inflammatory disease of the lung parenchyma which usually originates from acute lower respiratory tract infections (ARI) and is characterized by symptoms of cough accompanied by shortness of breath caused by infectious agents such as viruses, bacteria, mycoplasma , and foreign substances, in the form of pneumonia accompanied by exudation and consolidation and can be seen through radiological images (Isbaniah & Susanto, 2020) .

Pneumonia is an acute respiratory infection that affects the lungs. When someone suffers from pneumonia, the alveoli fill with pus and fluid, causing pain when breathing and restricting oxygen supply to the lungs. Complications of pneumonia can include dehydration, bacteremia (sepsis), lung abscess, pleural effusion, and difficulty breathing (Sartiwi et al., 2019) . Based on the above understanding, the author can conclude that pneumonia is caused by microorganisms such as bacteria, viruses, and fungi that infect the lung parenchyma and cause the alveoli to fill with pus and fluid.

2.1.2. Classification

There are two types of pneumonia: mild pneumonia and severe pneumonia. Both types have several symptoms that patients often experience.

a. For mild pneumonia the symptoms are:

1. cough
2. have a cold
3. fever
4. vomit
5. bluish skin color / cyanosis
6. chest wall retraction or chest retraction
7. rapid breathing or tachypnea
8. nostrils
9. environment affected by cigarette smoke
10. the child has not been given vitamin A
11. low birth weight

b. For severe pneumonia the symptoms are:
   1. out of breath
   2. bluish skin color / cyanosis
   3. chest wall retraction or chest retraction
   4. rapid breathing or tachypnea
   5. not immunized
   6. nostrils
   7. presence of additional breath sounds such as rhonchi

2.1.3. Etiology

The causes of pneumonia include environmental factors, compromised immune systems, and poor lifestyle choices, which allow viruses or bacteria to easily enter the lungs and disrupt the respiratory system. In addition to the aforementioned, there are several other causes of pneumonia, according to (Ekowati et al., 2022) .

a. Various groups of microorganisms, namely those caused by:
   1. Bacteria: Streptococcus pneumoniae , Staphylococcus aureus
   2. Fungi: Candidiasis , Histoplasmosis , Aspergillus , Coccidioidos Mycosis , Cryptococosis , Pneumocytis Carinii
   3. Aspiration: Food, Fluid, Stomach
   4. Inhalation: Poisons or chemicals, cigarettes, dust, and gases

b. Viruses, including :

1. Respiratory Syncytial Virus
2. Hantavirus , Influenza Virus
3. Parainfluenza Virus , Adenovirus
4. Rhinovirus
5. Herpes Simplex Virus
6. Cytomegalovirus .

c. Mycoplasma (Attacks children above toddler age)

pneumonia typically affects anyone, including alcoholics, post-surgery patients, people with respiratory disorders, those with viral infections, or those in a weakened or at-risk condition . The most common cause of pneumonia is Streptococcus pneumoniae, a bacterium already present in the esophagus of healthy individuals. Once the immune system weakens due to age, illness, or malnutrition, the bacteria rapidly multiply and cause damage. The entire lung tissue fills with fluid, and the infection rapidly spreads throughout the body via the bloodstream.

Patients infected with pneumonia will experience a high fever, sweating, shortness of breath, and a rapid heart rate. The mucous membranes will turn blue due to lack of oxygen. In some extreme cases , patients will experience chills, chattering teeth , chest pain, and coughing, producing green or yellowish mucus . Viral pneumonia, on the other hand, is much more severe and sometimes fatal. Viruses that infect the lungs will multiply even if no fluid-filled lung tissue (spots) are visible.

2.1.4. Clinical Manifestations

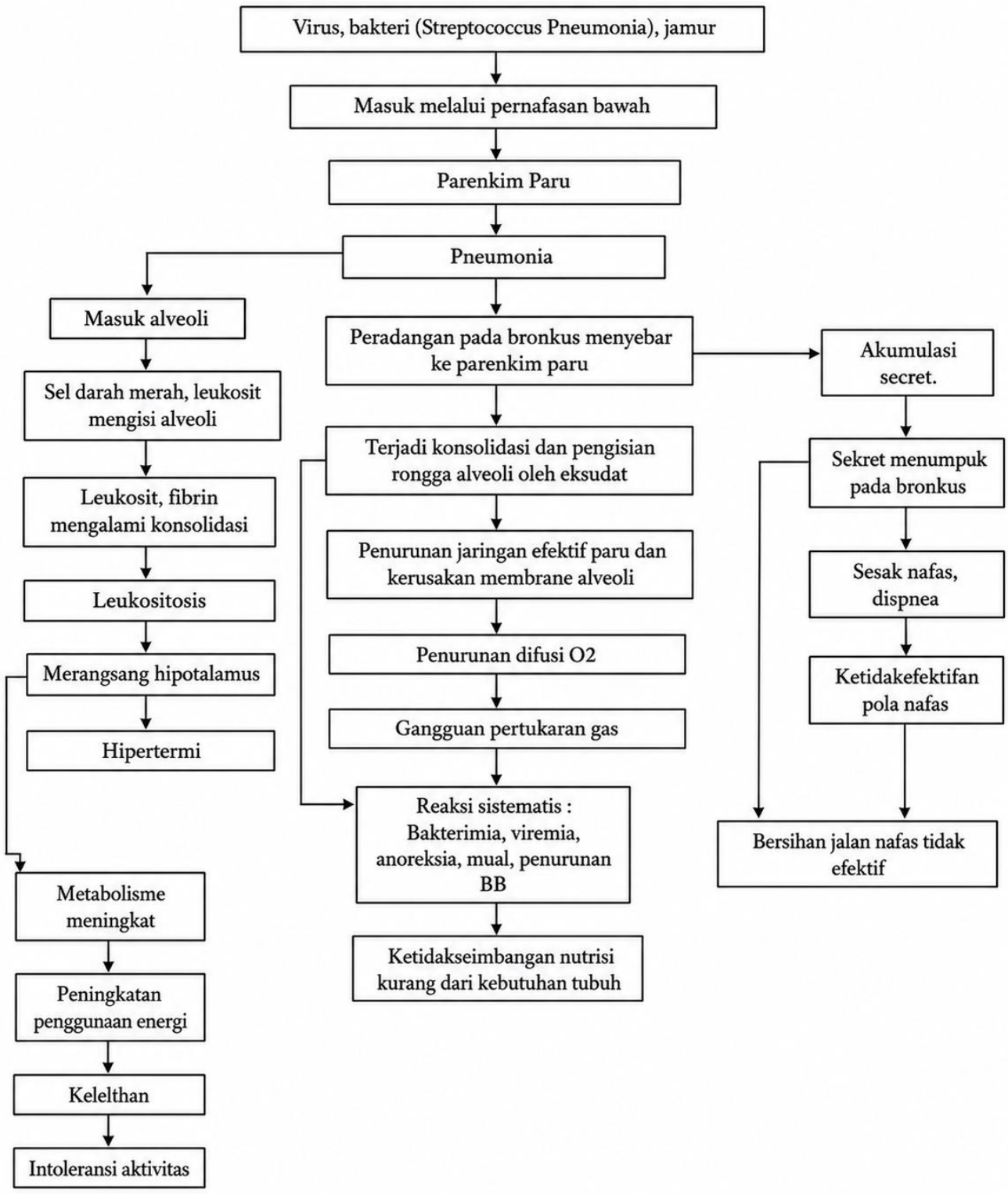
According to Rohmah (2020) , viral pneumonia is more often associated with coughing, wheezing, or stridor , and fever symptoms are less prominent than bacterial pneumonia . Bacterial infections are typically associated with high fever, chills, cough, dyspnea , and signs of pulmonary consolidation on auscultation. Other clinical symptoms that may be found include respiratory distress, including nasal flaring and retractions. intercostal and subcostal chest pain, and grunting . All types

of pneumonia have localized dry rhonchi and decreased respiratory sounds . The presence of pleural effusion can cause dullness on percussion.

Signs and symptoms that may occur according to (Thalib & Arisah, 2022)

a. Fever often appears as the first sign of infection. It most often occurs with a temperature reaching 39.5-40.5°C, even with mild infections. Children may be hyper-excitable or sometimes euphoric and more active than normal, leading some children to speak at an unusually fast rate.
b. Nasal discharge, often accompanying respiratory infections. It may be thin and scanty (rhinorrhea) or thick and purulent , depending on the type and/or stage of the infection.
c. Cough, a common symptom of respiratory illness, may only be present during the acute phase.
d. Auscultation of breath sounds with additional sounds such as rhonchi .
e. Tachypnea , characterized by breathing of 25-45x/minute accompanied by shortness of breath and use of accessory muscles in respiration.

2.1.5. Pathway


Virus, bakteri (Streptococcus Pneumonia), jamur
Masuk melalui pernafasan bawah
Parenkim Paru
Pneumonia
Masuk alveoli
Sel darah merah, leukosit mengisi alveoli
Leukosit, fibrin mengalami konsolidasi
Leukositosis
Merangsang hipotalamus
Hipertermi
Metabolisme meningkat
Peningkatan penggunaan energi
Kelelthan
Intoleransi aktivitas
Peradangan pada bronkus menyebar ke parenkim paru
Terjadi konsolidasi dan pengisian rongga alveoli oleh eksudat
Penurunan jaringan efektif paru dan kerusakan membrane alveoli
Penurunan difusi O2
Gangguan pertukaran gas
Reaksi sistematis : Bakterimia, viremia, anoreksia, mual, penurunan BB
Ketidakseimbangan nutrisi kurang dari kebutuhan tubuh
Akumulasi secret.
Sekret menumpuk pada bronkus
Sesak nafas, dispnea
Ketidakefektifan pola nafas
Bersihan jalan nafas tidak efektif

2.1.6. Management

According to Novitasari & Putri (2022) , the medical management given to patients with pneumonia is:

a. Pharmacological Therapy
    1. Ampicillin and tetracycline antibiotic therapy can be used to treat respiratory tract infections.
    2. Mucotic therapy helps thin secretions so they can be expectorated . This medication is given to pneumonia patients with abnormally thick mucus secretions. Acetylcysteine is used in conjunction with bronchodilators to reduce and thin secretions.
b. Non-Pharmacological Therapy
    1. Oxygen administration Oxygen therapy is useful to help meet the oxygenation needs of whole cells and increase oxygen saturation.
    2. Fowler position The semi- Fowler position maximizes increased lung expansion and reduces the frequency of shortness of breath so that the respiratory muscles expand optimally.
    3. Effective coughing This action needs to be done to remove sputum that has accumulated in the respiratory tract.

2.2. The Concept of Ineffective Airway Clearance

2.2.1. Understanding

Ineffective airway clearance is the inability to clear secretions or obstructions from the airways to maintain a patent airway. In patients with pneumonia, this condition generally occurs due to increased sputum production that is difficult to expel.

2.2.2. Signs and symptoms

a. Ineffective cough
b. Secretions are difficult to remove
c. Ronki
d. Increased breathing rate
e. Hard to breathe
f. Use of accessory muscles of respiration
g. Oxygen saturation decreases.

2.2.3. Impact of Ineffective Airway Clearance

a. Oxygenation disorders
b. Hypoxemia
c. Atelectasis
d. respiratory failure
e. Extension of hospitalization period.

2.3. Basic Concepts of Chest Physiotherapy

2.3.1. Understanding

Chest physiotherapy is a series of procedures aimed at helping mobilize and remove secretions from the respiratory tract, thereby improving airway clearance. This technique is a non-pharmacological intervention frequently used in patients with pneumonia and accumulated secretions .

2.3.2. Goals of Chest Physiotherapy

a. Mobilizing secretions
b. Facilitates sputum excretion
c. Improve lung ventilation
d. Reduce shortness of breath
e. Increase oxygenation .

2.3.3. Chest Physiotherapy Techniques

a. Postural drainage
b. Percussion (clapping)
c. Vibration
d. Deep breathing exercises
e. Effective cough.

2.3.4. Benefits of Chest Physiotherapy for Pneumonia

Various studies have shown that chest physiotherapy can increase sputum output, improve respiratory rate, increase oxygen saturation, and help overcome the problem of ineffective airway clearance in pneumonia patients.

2.4. Peppermint Inhalation Therapy

2.4.1. Understanding Inhalation Therapy

Peppermint inhalation therapy is a complementary therapy that utilizes steam or the aroma of peppermint essential oil (*Mentha piperita*) through the inhalation process to help provide a comfortable effect on the respiratory system.

2.4.2. Contents Peppermint

Peppermint contains:

1. Menthol
2. Menthone
3. Cineole
4. Flavonoid

Menthol is the main component that provides a cool and fresh sensation to the respiratory tract.

2.4.3. How Peppermint Inhalation Therapy Works

The menthol in peppermint can stimulate cold receptors in the airway mucosa, providing a feeling of relief when breathing. Additionally, inhaling peppermint steam helps moisturize the airways and facilitate the expulsion of thick secretions .

2.4.4. Benefits of Peppermint Inhalation Therapy

a. Helps thin secretions
b. Reduces the sensation of shortness of breath
c. Provides a relaxing effect
d. Improve patient comfort
e. Supports the effectiveness of sputum excretion with chest physiotherapy.

2.5. Nursing Care Concept

2.5.1. Assessment

Assessment is the first step of the nursing process by conducting data collection activities or obtaining accurate data from clients so that various existing problems will be known. To carry out this first step, various knowledge and abilities are required that nurses must have, including

knowledge of biopsychosocial and spiritual needs or systems for humans who view humans from biological, psychological, social and spiritual aspects, then knowledge of human development needs (growth and development from basic needs), knowledge of the concept of health and illness, knowledge of the pathophysiology of the disease experienced, knowledge of family systems and cultural cultures and the values of beliefs held by the client.

Meanwhile, the skills required for nurses include systematic observation of clients, verbal and nonverbal communication skills, good listening skills, the ability to create mutually beneficial relationships, the ability to build trust, the ability to conduct interviews, and the ability to conduct nursing assessments or physical examinations. Through the knowledge and skills required at this assessment stage, the assessment objectives can be achieved. The assessment steps include (Hidayat, 2021): :

1) Data collection
2) Neck
3) Chest, Breasts, and Armpits
4) Abdomen
5) Genitalia
6) Skin and Nails
7) Extremities

2.5.2. Nursing Diagnosis

A nursing diagnosis is a clinical assessment of a client's response to a health problem or life process, whether actual or potential. A nursing diagnosis aims to identify the individual, family , and community responses to health-related situations. Nursing diagnoses are divided into two types: Negative and Positive. A negative diagnosis indicates that the client is ill or at risk of developing an illness, and establishing this diagnosis will direct the provision of curative, restorative, and preventative nursing interventions. These diagnoses consist of an Actual Diagnosis and a Risk Diagnosis. A Positive Diagnosis indicates that the client is healthy and can achieve a healthier or optimal state. This diagnosis is also called a Health Promotion Diagnosis (Hidayat, 2021) .

Nursing diagnoses that may arise in pneumonia patients include:

1. Ineffective airway clearance
2. Ineffective breathing pattern
3. Gas exchange disorders
4. Hyperthermia
5. Activity intolerance
6. Nutritional imbalance less than body requirements

2.5.3. Nursing Care Plan

Nursing intervention is a nursing plan for a patient based on a nursing diagnosis to address problems or meet patient needs by formulating goals, action plans, and outcome criteria or patient progress. The characteristics of nursing intervention are as follows (Polopadang & Hidayah, 2019):

1) Nursing care plans are prepared and written by professional nurses who have adequate educational backgrounds, involving patients.
2) Implemented from the first contact with the patient. A nursing care plan is effective if it is implemented from the first contact. Immediately after the assessment, the nurse should begin documenting the actual or risk diagnosis, outcome criteria, and planned interventions.
3) All components of the nursing care plan must be continually updated. Nursing diagnoses, outcome criteria, and intervention plans that are no longer valid must be immediately revised with an updated intervention plan.

The steps for nursing intervention are as follows (Polopadang & Hidayah, 2019) :

1) Determining problem priorities The first activity in the nursing intervention stage is determining the nursing problem to determine the priority scale for which solutions will be addressed first. Nursing priorities are the formulation of nursing diagnoses or patient problems using the level of urgency or importance to determine the required nursing intervention stages.
2) Writing objectives Objective criteria consist of short and clear formulations, arranged based on nursing diagnosis, specific,

measurable/observable, realistic/achievable, consisting of subjects, patient behavior, conditions and objective criteria.

3) Establishing Outcome Criteria: Outcome criteria are the defining characteristics of success for a defined goal. They are problem-oriented and address possible causes and refer to symptoms . Outcome criteria encompass four aspects: cognitive, affective, psychomotor, and changes in body function.
4) Selecting a nursing action plan or intervention

Possible interventions in cases of pneumonia include:

Table 1 Nursing Interventions for Pneumonia Patients

Nursing diagnosis	SLKI	SIKI	RATIONAL
Ineffective airway clearance related to retained secretions is indicated by the presence of additional breath sounds such as wheezing and rhonchi (D.0001)	**Increased airway clearance (L.01002)** After nursing care for 4x24 hours, it is expected that airway clearance will increase with the following outcome criteria: 1. effective cough increases 2. decreased sputum production 3. decreased wheezing 4. decreased wheezing 5. meconium (in neonates) decreases	**Effective coughing exercises (I.01006)** Observation 1. coughing ability identification 2. monitor for sputum retention 3. monitor signs and symptoms of respiratory tract infections 4. monitor fluid input and output (eg : amount and characteristics) Therapeutic 1. fowler and fowler positions 2. Place a sheet and bend over the patient's lap. 3. Discard the secret in the sputum container 4. peppermint inhalation therapy	1. Knowing the respiratory status and early detection of decreased respiratory function due to airway obstruction by secretions . 2. Identifying the presence of additional breath sounds such as wheezing and rhonchi which indicate accumulation of secretions or narrowing of the airways. 3. Assess the adequacy of oxygenation and effectiveness of pulmonary ventilation.

Nursing diagnosis	SLKI	SIKI	RATIONAL
		according to procedure 5. Provide chest physiotherapy (percussion, vibration, postural drainage) 6. nebulizer or mucolytic therapy according to the medical program <u>Education</u> 1. Explain the purpose and procedure of effective coughing. 2. Recommend to inhale through the nose for 4 seconds, hold for 2 seconds, then exhale through the mouth with pursed lips (rounded) for 8 seconds. 3. Suggest repeating deep breaths up to 3 times 4. Encourage a strong cough immediately after the 3rd deep breath. <u>Education</u> 1. Collaboration in administering mucolytics or	4. Determine the severity of secretion retention and the effectiveness of sputum expulsion. 5. Increases lung expansion, facilitates ventilation and helps mobilize secretions . 6. Helps expel secretions from the respiratory tract so that the airways become more patent. 7. Helps loosen and mobilize secretions from the bronchial walls so they are easier to expel. 8. Peppermint steam helps provide a soothing sensation to the airways, moisturizes the mucosa, and helps thin secretions so they are easier to expectorate . 9. Helps thin secretions so

Nursing diagnosis	SLKI	SIKI	RATIONAL
		expectorants, if necessary	they are easier to expel through coughing. 10. Helps widen the airways and thin secretions to increase the effectiveness of airway clearance .

Nursing diagnosis	SLKI	SIKI	RATIONAL
Ineffective breathing pattern related to respiratory effort obstruction characterized by pain when breathing (D.0005)	**Breathing pattern improved (L.01004)** After nursing actions have been carried out for 4x24 hours, it is hoped that the breathing pattern will improve with the following outcome criteria : 1. Decreased dyspnea 2. Decreased use of accessory muscles 3. Decreased expiratory phase prolongation 4. Breathing frequency improves 5. Breathing depth improves	**Airway management (L.01011)** <u>Observation</u> 1. Monitor breathing patterns (frequency, depth, respiratory effort) 2. Monitor for additional breath sounds (eg: gurgling , wheezing , dry rhonchi) 3. Monitor sputum (amount, color, odor) <u>Therapeutic</u> 1. Maintain airway patency with head-tilt and chin -lift (jaw thrust if suspected cervical fracture trauma) 2. Position semi-fowler or fowler 3. Give warm drinks 4. Perform chest physiotherapy , if necessary.	1. Knowing changes in respiratory status and detecting ventilation disorders due to pain that limits lung expansion. 2. Use of accessory muscles of respiration indicates increased work of breathing and ineffective ventilation. 3. Assess the adequacy of oxygenation due to respiratory pattern disturbances caused by pain. 4. Increases lung expansion, reduces pressure on the

Nursing diagnosis	SLKI	SIKI	RATIONAL
		5. Perform mucus suction for less than 15 seconds 6. Perform hyperoxygenation before suctioning. endotracheal tube 7. Remove solid obstruction with McGill forceps 8. Give oxygen , if necessary <u>Education</u> 1. Recommend fluid intake of 2000 ml/day, if there are no contraindications. 2. Teach effective coughing techniques <u>Collaboration</u> 1. Collaboration in administering bronchodilators, expectorants, mucolytics , if necessary.	diaphragm, and makes breathing easier. 5. Helps improve alveolar ventilation, reduce shortness of breath, and maintain a more effective breathing pattern. 6. Helps reduce pain perception and reduce respiratory muscle tension. 7. Reduces anxiety which can worsen pain and increase oxygen requirements.
Impaired gas exchange related to ventilation-perfusion imbalance (D.0003)	**Increased gas exchange (L.01003)** After nursing actions have been carried out for 3 x 24 hours, it is hoped that gas exchange will increase with the following outcome criteria: 1. decreased dyspnea	**Oxygen Therapy (I.01026)** <u>Observation</u> 1. Monitoring oxygen flow rate 2. Monitor the position of the oxygen therapy device 3. Monitor oxygen flow periodically and ensure that the fraction delivered is sufficient.	1. Changes in breathing patterns are an early indicator of impaired ventilation and decreased tissue oxygenation . 2. Adverse breath sounds may indicate the presence of secretions , obstruction, or fluid in the

Nursing diagnosis	SLKI	SIKI	RATIONAL
	2. decreased additional breath sounds 3. decreased tachycardia 4. PCO2 improves 5. PO2 improves 6. Arterial pH improves	4. Monitor the effectiveness of oxygen therapy (e.g. , oximetry , blood gas analysis), if necessary. 5. Monitor the ability to release oxygen while eating 6. Monitor for signs of hypoventilation 7. Monitor monitor signs and symptoms of oxygen toxicity and atelectasis 8. Monitor anxiety levels due to oxygen therapy 9. Monitor nasal mucosal integrity due to oxygen administration <u>Therapeutic</u> 1. Clear secretions from the mouth, nose, and trachea, if necessary. 2. Maintain airway patency 3. Prepare and arrange oxygen delivery equipment 4. Administer supplemental oxygen, if necessary 5. Continue to provide oxygen while the patient	lungs that interfere with gas exchange. 3. Oxygen saturation reflects the adequacy of oxygen bound to hemoglobin and the effectiveness of oxygen therapy. 4. ABGs provide objective information regarding the patient's oxygenation , ventilation, and acid-base balance status. 5. Hypoventilation can cause carbon dioxide retention and worsen gas exchange disorders. 6. Undetected hypoxia can cause disruption of vital organ function and increase the risk of complications. 7. A patent airway allows airflow to reach the alveoli optimally, thus improving gas exchange. 8. Properly functioning

Nursing diagnosis	SLKI	SIKI	RATIONAL
		is being transported. 6. Use an oxygen device that is appropriate to the patient's mobility level. <u>Education</u> 1. Teach patients and families how to use oxygen at home. <u>Collaboration</u> 1. Collaboration in determining oxygen doses 2. Collaborative use of oxygen during activity and/or sleep	equipment ensures that oxygen can be delivered according to the patient's needs. 9. Oxygen administration increases the alveolar partial pressure of oxygen thereby improving oxygen diffusion into the pulmonary capillaries. 10. Selecting the right device helps to achieve the oxygen concentration the patient needs effectively.
Hyperthermia associated with a disease process characterized by the presence of a mediastinal tumor (D.0130)	**Thermoregulation improved (L.14134)** After carrying out nursing actions for 3x24 hours, it is hoped that thermoregulation will improve with the following outcome criteria: 1. Shivering decreases 2. Body temperature improves 3. Skin temperature improves	**Hyperthermia management (I.15506)** <u>Observation</u> 1. Identify the cause of hyperthermia (eg : dehydration, exposure to hot environments, use of incubators) 2. Body temperature monitor 3. Monitor electrolyte levels 4. Output monitor urine	1. Determining the factors causing hyperthermia helps nurses choose the right action to address increased body temperature. 2. Monitoring changes in body temperature regularly helps evaluate the development of the patient's condition and

Nursing diagnosis	SLKI	SIKI	RATIONAL
		5. Monitor complications due to hyperthermia <u>Therapeutic</u> 1. Provide a cool environment 2. Loosen or remove clothing 3. Wet and fan the body surface 4. Give oral fluids 5. Change linen daily or more often if you experience hyperhidrosis (excessive sweating). 6. Perform external cooling (eg : hypothermia blanket or cold compress on forehead, neck, chest, abdomen, axilla) 7. Avoid giving antipyretics or aspirin 8. Give oxygen, if necessary <u>Education</u> 1. Recommend bed rest <u>Collaboration</u> 1. Collaboration in administering intravenous fluids and electrolytes, if necessary	the effectiveness of the therapy given. 3. Hyperthermia can cause loss of fluids and electrolytes through sweat, thus risking electrolyte imbalance. 4. Halluar Urine is an indicator of hydration status and kidney perfusion which can be disturbed by increased body temperature. 5. Early detection of complications such as severe dehydration, seizures, impaired consciousness, or organ damage allows for prompt treatment. 6. A cool environment helps increase the release of body heat through conduction, convection, and radiation so that body temperature decreases.

Nursing diagnosis	SLKI	SIKI	RATIONAL
			7. Reduces resistance to heat release from the body surface and increases air circulation around the skin. 8. Evaporation of water from the skin surface accelerates the loss of body heat, thereby helping to lower body temperature.
Nutritional imbalance less than body requirements related to psychological factors is characterized by the client refusing to eat (D.0019)	**Nutritional status improved (L.03030)** After nursing actions are carried out for 3x24 hours, it is hoped that nutritional status will improve with the following outcome criteria: 1. The portion of food consumed increases 2. Weight gain 3. Body mass index (BMI) improved	**Nutrition management (I.03119)** <u>Observation</u> 1. Identify nutritional status 2. Identifying food allergies and intolerances 3. Identify preferred foods 4. Identify calorie needs and nutrient types 5. nasogastric tube use 6. Monitor food intake 7. Weight monitor 8. Monitor laboratory test results <u>Therapeutic</u> 1. Perform oral hygiene before eating, if necessary	1. Knowing the patient's initial nutritional condition as a basis for preparing interventions according to needs. 2. Prevent allergic reactions and digestive disorders that can worsen the patient's condition. 3. Increase appetite and patient compliance in consuming the food provided 4. Ensure that the patient's energy and nutritional needs are met according to the disease

Nursing diagnosis	SLKI	SIKI	RATIONAL
		2. Facilitate determining dietary guidelines (eg : food pyramid) 3. Serve food attractively and at the right temperature. 4. Provide high fiber foods to prevent constipation 5. Provide foods high in calories and high in protein 6. Provide food supplements, if necessary 7. nasogastric tube feeding if oral intake can be tolerated. <u>Education</u> 1. Teach sitting position, if able 2. Teach the programmed diet <u>Collaboration</u> 1. Collaboration in administering medication before meals (eg : pain reliever, antiemetic), if necessary 2. Collaborate with a nutritionist to determine the number of calories and types of nutrients needed, if necessary.	condition and body metabolism. 5. Determining the most effective method of providing nutrition to patients who have swallowing disorders or decreased consciousness. 6. Assess the adequacy of nutritional intake and the effectiveness of interventions that have been provided. 7. Body weight is an important indicator for evaluating nutritional status and changes in patient condition. 8. Laboratory values such as albumin, hemoglobin, glucose, and electrolytes help assess nutritional status and detect complications. 9. Oral hygiene increases comfort,

Nursing diagnosis	SLKI	SIKI	RATIONAL
			improves taste perception, and increases the patient's appetite. 10. Helping patients understand healthy eating patterns and choose foods that suit their nutritional needs. 11. The right appearance and temperature of food can increase appetite and the amount of food intake. 12. Fiber helps increase intestinal motility and facilitates the process of stool elimination. 13. Adequate calories and protein are needed to meet energy needs, maintain muscle mass, accelerate tissue healing, and improve nutritional status.

2.5.4. Nursing Implementation

Nursing implementation is the fourth stage of the nursing care process which is carried out as a form of follow-up to the interventions that have been made by nurses to help patients achieve their goals. Some of the abilities that a nurse must have in the implementation stage, include: the ability to communicate effectively, the ability to build relationships of mutual trust and mutual assistance, the ability to carry out psychomotor techniques, the ability to carry out systematic observations, the ability to provide health education, the ability to advocate, and the ability to conduct evaluations. The purpose of implementation is to help patients achieve their predetermined goals which include improving health, preventing disease, restoring health and facilitating good coping if the patient has the desire to participate in the implementation of nursing care (Polopadang & Hidayah, 2019) .

2.5.5. Nursing Evaluation

Evaluation is an assessment or measurement by comparing changes that occur before and after a treatment is given. Nursing evaluation itself is an assessment that is observed and measured from the results of comparing a change in the patient's condition or condition with the goals and outcome criteria according to the planning stage. Evaluation is carried out continuously with the involvement of the patient, family, and other healthcare professionals. The objectives of the evaluation include modifying the nursing action plan, continuing the nursing action plan, determining whether nursing goals have been achieved or not, observing and assessing the patient's ability to overcome problems and achieve goals, and examining the causes of problems that have not been resolved (Polopadang & Hidayah, 2019) .

Evaluation is divided into two types: Process Evaluation (Formative) and Outcome Evaluation (Summative). Process evaluation (Formative) is conducted after each action is completed, oriented towards etiology, and is carried out continuously until the predetermined goal is achieved. Meanwhile, outcome evaluation (Summative) is an evaluation conducted after the end of the nursing action in full, oriented towards the nursing

problem, explaining success/ failure , and recapitulating and concluding the patient's health status according to the specified time frame (Polopadang & Hidayah, 2019) .

Formative evaluation in the form of SOAP/SOAPIE/SOAPIER components is designed to facilitate nurses in assessing or monitoring patient progress. S: Subjective Data -> Nurses write down patient complaints that are still felt after nursing actions are given. O: Objective Data > Objective data is data based on the results of measurements or observations of nurses directly to patients and what the patient feels after nursing actions are given. A: Analysis -> Analysis is the interpretation of subjective data and objective data. Analysis is a problem or nursing diagnosis that still occurs or can also be written as a new problem/diagnosis that occurs due to changes in the patient's health status that have been identified in subjective and objective data. P: Planning -> Nursing planning that will be continued, stopped, modified or added to the previously determined nursing action plan. Actions that have shown satisfactory results and do not require re-action are generally stopped. Actions that need to be continued are actions that are still competent to solve the patient's problem and require time to achieve success. Actions that need to be modified are actions that are felt to be able to help solve the patient's problem, but need to be improved in quality or have other alternative options that are thought to help speed up the healing process. I: Implementation -> Implementation is a nursing action carried out according to the instructions identified in the P (planning) component. Don't forget to write the date and time of implementation. E: Evaluation -> Evaluation is the patient's response after nursing actions are carried out. R: Reassessment -> Reassessment is a reassessment carried out on the plan after the evaluation results are known (Polopadang & Hidayah, 2019) .