

## **Nursing Care for Mrs. D with a Medical Diagnosis of Babies with Low Birth Weight**

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### **Abstract**

Babies with low birth weight is a condition where a baby is born with a weight of less than 2,500 grams. Such babies face a higher risk of mortality compared to those born with normal weight due to the immaturity of their organ systems, including the lungs, kidneys, heart, immune system, and digestive system. Babies with low birth weight often struggle to adapt to their environment, leading to instability in physiological functions such as temperature, heart rate, and oxygen saturation. This can result in hypothermia, increased heart rate, decreased respiratory frequency, recurrent apnea, and reduced SpO<sub>2</sub> levels. This study aims to describe the nursing care provided to By.Ny.D, a patient with a medical diagnosis of babies with low birth weight in the Perinatology Room at Waled Hospital, Cirebon Regency. A qualitative research design with a case study approach was employed. The subject of the case study was By.Ny.D, observed over three days from January 22<sup>nd</sup>—24<sup>th</sup>, 2024. The primary nursing issues identified were ineffective breathing patterns and nutritional deficits. After three days of nursing care, the study concluded that the problems of ineffective breathing patterns and nutritional deficits remained unresolved, necessitating the continuation of the planned interventions.

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**Keywords: Babies with Low Birth Weight, Ineffective Breathing Pattern, Nutritional Deficit.**

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### **INTRODUCTION**

Babies with low birth weight are still a problem because it is one of the factors causing infant death. According to the World Health Organization (WHO), a baby with low birth weight is a baby born with a birth weight of less than 2,500 grams (Mawarti, 2021). Babies with babies with low birth weight have very small chances of survival and a higher risk of death compared to babies born with normal weight. If babies with low birth weight can survive, the baby will experience various health problems, such as growth or cognitive development problems and degenerative diseases in adulthood (Rerung Layuk, 2021).

Babies with low birth weight have a serious impact on the quality of future generations because it can slow down the growth and development of children (Muhammad Fajar Ratanca Duri & Reni Ilmiasih, 2024). Babies with low birth weight will have difficulty adapting to the environment outside the womb after birth. This is caused by the immaturity

of the baby's organ systems, such as the lungs, kidneys, heart, body immunity, and digestive system. Difficulty adapting to the environment and instability of physiological functions include temperature, heart rate, and oxygen saturation, which have an impact on hypothermia, increased heart rate, and decreased respiratory frequency, which can cause recurrent apnea, and the percentage of SpO<sub>2</sub> tends to decrease (SANTOSO, 2022).

Complications that can be experienced by babies with low birth weight include asphyxia, aspiration risk, failure to breathe spontaneously and regularly shortly or a few minutes after birth, hypothermia or thermoregulatory disorders, nutritional disorders, and the risk of infection (Indrawati et al., 2024). Problems in babies with low birth weight also include problems with the respiratory system, central nervous system, cardiovascular, hematology, gastrointestinal, kidney, and thermoregulation (Rifai et al., 2020). In the neonatal period, nutrition in babies with low birth weight is the greatest need to achieve optimal growth and development, so babies with low birth weight need special and optimal nutritional support to meet their body needs (SANTOSO, 2022).

Babies with low birth weight are at high risk of developing ineffective breathing patterns, where inspiration and/or expiration do not provide adequate ventilation due to narrowing of the airway or the baby's own pulmonary vascular immaturity (Ufiya Salma et al., 2024). In addition, babies with low birth weight have a tendency towards an increase in the occurrence of infections and are prone to complications. Factors that cause perinatal death include bleeding, hypertension, infection, thermal abnormalities, asphyxia, and hypothermia. Babies with low birth weight have a high risk of dying at 28 days of life (Eriza et al., 2023).

The main cause of babies with low birth weight is premature birth (<37 weeks of age), so babies with low birth weight do not have enough time in the mother's womb to grow and gain weight (Haksari, 2019). Another cause of babies with low birth weight is Intrauterine Growth Restriction (IUGR) or stunted fetal growth (Eriza et al., 2023). These two causes are influenced by risk factors such as maternal, placenta, fetal, and environmental factors (Sujianti, 2017). Some maternal factors include maternal age (<20 years or >35 years), birth spacing that is too close, and pregnancy complications such as anemia, hypertension, poor nutritional status, preeclampsia, premature rupture of membranes, low socioeconomic status, smoking habits, and drinking alcohol. Fetal factors include congenital abnormalities and infarction and environmental factors such as exposure to radiation and toxic substances (Sari et al., 2021).

According to the World Health Organization (WHO), in 2020, globally, there are around 5 million neonatal deaths per year, as much as 98%. There are 4.5 million infant deaths under five years old, 7.5% of which occur in the first year of life (Pristya et al., 2020). The global prevalence of babies with low birth weight in 2015 was 14.6%, more than half of which were in the Asian region. Based on Indonesia's Child Health profile in 2020, Indonesia's Infant Mortality Rate (AKB) is 24/1000 live births (KH). Meanwhile, neonatal mortality in Indonesia is caused by BBLR 35.3% and other causes. According to the Ministry of Health (2018), the proportion of BBLR in Indonesia in children aged 0-59 months is 6.2%.

The role of nurses is very important to reduce mortality and morbidity due to babies with low birth weight; therefore, providing health education about pregnancy, fulfilling nutrition during pregnancy, caring for babies with low birth weight, and fulfilling the right physiological needs will greatly help the growth and development of babies. The role of

nurses is also to carry out nursing care or independent actions and collaboration in the management of babies with low birth weight, as well as several other nursing actions that are in accordance with nursing intervention standards.

The data and information above show that patients with babies with low birth weight diagnosis need more comprehensive attention and treatment, so nurses are required to increase their in-depth knowledge of the disease. From this description, the researcher is interested in conducting a case study by providing nursing care to patients with babies with low birth weight diagnoses to meet patient needs. In accordance with the background that has been stated, the purpose of this study is to describe nursing care in By.Ny.D patients with a medical diagnosis of low birth weight (BBLR) in the Perinatology room of Wales Hospital, Cirebon Regency. The aims of this study are to assess the effectiveness of current nursing care practices, identify areas for improvement, and provide recommendations for enhancing patient outcomes in cases of low birth weight.

## **RESEARCH METHODS**

This type of research uses a qualitative approach with case studies as the main method. The subject in this study is By.Mrs.D has a medical diagnosis of babies with low birth weight. The case study was carried out in the Perinatology Room of Waled Hospital, Cirebon Regency for 3 days of assessment, namely on January 22<sup>nd</sup>—24<sup>th</sup>, 2024. The data collection method used is through observation, interviews with the baby's parents, and analysis of documents such as patient medical records. After the data is collected, the researcher will prepare a nursing care plan and implement and evaluate the nursing care that has been provided to the patient.

## **RESULTS AND DISCUSSION**

### **Result**

The results of the case study at the assessment stage were obtained by a male patient (By.Ny.D) born on January 18, 2024, with a gestational age of 34 weeks. Mrs. D's baby was born spontaneously with the help of midwives at PONEK PKM Losari, with a birth weight of 1,900 grams and a body length of 45 cm. Baby Mrs. D is the second child of Mrs. D and Mr. A. Baby Mrs. D was taken to Waled Hospital, Cirebon Regency, because the baby's condition during childbirth did not cry immediately, born with babies with low birth weight, the baby had shortness of breath and cyanosis with an APGAR score of 8. The assessment was carried out on January 22<sup>nd</sup>, 2024, when the assessment of a 5-day-old baby was done in an incubator, using an oxygen nasal cannula 3 LPM; the baby was using OGT. Currently, his weight is 1,750 grams, the baby's body length is 45 cm, the head circumference is 30 cm, the chest circumference is 32 cm, the abdominal circumference is 32 cm, and the upper arm circumference is 8 cm.

The results of the physical examination showed that the baby's general condition was weak, the level of consciousness of the mentis compos, temperature 36.9°C, pulse 127x/min, respiration 45x/min, oxygen saturation 97%. Small baby posture, small face and lots of lanugo around the face, head shape larger than the baby's body, soft palpable anterior and posterior fontanelles, clean scalp, no visible enlargement of the thyroid gland on the neck, weak swallowing reflex, symmetrical eyes, anemic conjunctiva, non-icteric sclera, isocor pupils, good eye hygiene, clean baby ears odorless, height and location of ear tips with outer chantus eye normal, the baby's nose is symmetrical and intact, there is no septal

deviation, there is breathing of the nasal lobes, there is a milia/miliaria on the cheeks, the mouth is intact, the lips are pink, the sucking reflex is weak, the rooting of the baby's reflex is present, the chest shape is symmetrical, there is no pigeon chest, there is chest retraction when breathing, the baby uses breathing auxiliary muscles, vesicular lung sounds, no additional breathing sounds such as wheezing/Ronchi, regular heart sounds, babies use nasal respiratory aids oxygen nasal cannula 3 LPM, flat abdominal shape, intestinal noise, no distension, no palpable mass in the abdomen, genitalia there is a penis, testicles there are 2, anus has holes, meconium has come out, baby skin is reddish, baby skin is thin, skin is warm palpable, baby skin is moist, CRT < 2 seconds, and the integrity of the fingers and toes of each hand/foot has 5 fingers.

The results of laboratory support examinations on January 18<sup>th</sup>, 2024 obtained the results of the baby's blood type, namely O with rhesus +, routine hematology results obtained hemoglobin values of 20.3, hematocrit 61, platelets 179, leukocytes 16.7, MCV 114.0, MCH 37.0, MCHC 32.4, erythrocytes 5.57, basophils 1, eosinophils 1, rod neutrophils 0, segment neutrophils 41, lymphocytes % 49, monocytes % 9 and GDS values 55. Babies receive cefotaxime drug therapy 2 x 85 mg intravenously and an infusion of erisanbe 4 x 0.5 ml.

After conducting data analysis, it was obtained that the nursing diagnosis that appeared in the case was ineffective breathing pattern b.d impotence ddd nasal lobe breathing in the baby, nutritional deficit b.d inability to digest food d.d weak sucking and swallowing reflexes, and risk of hypothermia d.d low birth weight.

The nursing care plan is made and prepared in accordance with the Indonesia Nursing Standards (SDKI, SLKI, and SIKI) and then will be implemented in accordance with the nursing diagnoses that have been determined for 3x24 hours of treatment. The implementation of nursing diagnosis of ineffective breathing patterns consists of monitoring breathing patterns, monitoring additional breathing sounds, monitoring the frequency, rhythm, depth, and effort of breathing, monitoring oxygen saturation, sucking on the self-suction for less than 15 seconds if necessary, providing nesting positions, and administering oxygen. The implementation carried out in the nursing diagnosis of nutritional deficit such as monitoring the amount of nutrients entered, monitoring the baby's weight, monitoring the presence of nausea and vomiting, assessing the baby's ability to suck and swallow, checking residues, providing nutrients such as special babies with low birth weight formula milk through an OGT hose. The implementation carried out in the nursing diagnosis of hypothermia risk such as monitoring the baby's body temperature, monitoring the baby's vital signs, monitoring skin turgor, and keeping the baby's body warm/providing a warm environment.

The nursing evaluation of Mrs. D's baby is carried out after 3x24 hours of care, which will be discussed and included in the discussion.

## **Discussion**

### **Ineffective Breathing Patterns**

In the case of Mrs. D's babies with low birth weight, the patient was using an oxygen nasal cannula 3 LPM. The baby appeared weak, had a respiration rate of 45x/min, exhibited nasal flaring and chest retraction during breathing, and used accessory muscles for respiration. Vesicular breath sounds were present without additional sounds like wheezing or rhonchi. These observations indicate an ineffective breathing pattern, where inspiration and/or expiration do not provide adequate ventilation (Tim Pokja SDKI DPP PPNI, 2018).

One of the interventions implemented was positioning the baby in a nesting position. Adjusting the sleep position of newborns is a key role of neonatal nurses in providing routine care. Incorrect positioning can lead to changes in physiological status, such as increased respiratory rate, pulse frequency, and decreased oxygen saturation. Conversely, correct positioning can improve sleep quality and increase clinical outcomes, including improved lung function and increased oxygen saturation. Research from various countries supports that nesting positioning can optimize lung function in premature babies (Amaliya et al., 2023).

Nursing care for ineffective breathing patterns showed improvements in oxygenation status, including pulse, respiration, and body temperature, following the implementation of nesting positioning. This technique requires special attention and expertise to create a comfortable position for the baby, using a cloth to support the head, chest, hands, and feet, making the baby feel as though it is being hugged, which can provide calmness and comfort despite the use of breathing aids (Oktarina et al., 2020).

Evaluation of Mrs. D's baby after 72 hours of treatment on January 25, 2023, showed subjective results that could not be studied, and objective results included the continued use of an oxygen nasal cannula at 3 LPM, a respiration rate of 38x/min, and oxygen saturation of 99%. Nasal flaring and chest retraction were still present, and accessory muscles were still being used. The assessment concluded that ineffective breathing patterns had not been resolved, and the plan was to continue the current interventions.

#### **Nutrient Deficit**

Mrs. D's baby was using an orogastric tube (OGT) and was fasting on the first day of assessment due to cloudy residue in the OGT tube. The baby had weak sucking and swallowing reflexes and experienced weight loss from 1,900 grams at birth to 1,750 grams during treatment. This indicated a nutritional deficit, where the nutritional intake was insufficient to meet metabolic needs (Tim Pokja SDKI DPP PPNI, 2018).

Providing adequate nutrition to premature babies with low birth weight is crucial. It is expected that proper nutrition will help these babies achieve growth and development comparable to full-term babies and lead to a good quality of life. Challenges in providing nutrition arise due to the weakness and underdeveloped organ function of premature infants, making oral nutrition difficult. Breast milk is particularly important as it fulfills the nutritional balance required for growth and development and is easily digestible. It contains essential nutrients like proteins, carbohydrates, fats, vitamins, and minerals and also provides protection against infections and diseases while aiding in the immune system and brain development (Widiawati & Siti Haryani, 2023).

The intervention for diagnosing nutritional deficits included monitoring nutrient intake, assessing the baby's ability to suck and swallow, checking for residues in the OGT, and providing nutrition through the OGT. This implementation was carried out over 72 hours. On the first day, cloudy residue in the OGT tube prevented the administration of breast milk. The baby had weak sucking and swallowing reflexes, cried frequently, and was in an incubator. By the second day, there was no cloudy residue, and the baby received 2x5 cc of breast milk per shift through the OGT without vomiting, although the sucking reflex was weak and the swallowing reflex was moderately strong. By the third day, no cloudy residue was present, and the baby received 2x5 cc of breast milk per shift through the OGT, showed good sucking reflex and strong swallowing reflex, and did not vomit.

Nursing care for the nutritional deficit diagnosis showed a weight gain of

approximately 100 grams after 72 hours of intervention, although the baby's weight remained low. Consequently, the intervention was continued. The summative evaluation on January 25<sup>th</sup>, 2023, indicated that the baby was still using the OGT, receiving 5 cc of breast milk through the tube, and did not vomit. There was no residue, and the baby demonstrated good sucking and strong swallowing reflexes. However, the nutritional deficit problem was not fully resolved, and the intervention continued.

## **CONCLUSION**

In the above case, the nursing problems found were ineffective breathing patterns and nutritional deficits. Nursing care plans are made in accordance with Indonesia's Nursing Intervention Standards. The implementation is carried out on Mrs. D's baby for 3x24 hours of care, where the implementation is carried out in accordance with the nursing care plan that has been made. The results of the evaluation after 3 days of treatment found that the nursing problem of breathing patterns was ineffective and the nutritional deficit had not been resolved, so the intervention was still continued as planned.

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