

Positional Regulation, Sucking Reflex and Incidence When Given Nutrition Through OGT in High-Risk Infants with Low Birth Weight Infants in the Nicu Room: A Case Study of Waled Hospital

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Abstract

High-risk babies are babies born at 32 – 36 weeks of gestation/prematurely, babies whose mothers suffer from Diabetes Mellitus, babies with a history of apnea, babies with seizures, sepsis, asphyxia, babies with bleeding disorders or breathing problems. Problems that often arise in cases of LBW babies include unstable body temperature, breathing problems, digestive and nutritional disorders, liver immaturity, anaemia, intraventricular bleeding, seizures, infections, hypoglycemia, hyperglycemia and hypocalcemia. This study aims to provide nursing care to babies at high risk in the Nicu Room at Waled Hospital, Cirebon Regency, on 27 December 2023. Examination of the sucking reflex is recommended as a screening that shows intact motor neuron function in neonates. The sucking reflex is well-developed in normal babies and is coordinated with breathing. Inhibition of the sucking reflex in the first hours of life will affect the ability to suck at the beginning of life and will directly hinder the nutritional intake received by the baby. Arranging sleeping positions for newborn babies is the role of the neonatal nurse in providing routine daily care. Positioning, especially for premature babies, is not easy. Positioning errors can result in changes in physiological status (increased respiratory rate, pulse frequency, and decreased oxygen saturation), disturbed comfort and quality of sleep, drinking intolerance, hip joint deformity, and bleeding in the brain. The issues affecting all three clients have not been resolved. However, interventions such as positioning, assessing sucking reflexes in high-risk babies, and providing nutrition through OGT are ongoing, with efforts to set the supine sleep position during enteral nutrition. While the problems faced by the high-risk infants in this study are not yet resolved, ongoing nursing interventions are crucial in managing their care. Continued attention to proper positioning, monitoring of sucking reflexes, and nutritional support through OGT is vital for improving the health outcomes of these vulnerable infants.

Keywords: Position Adjustment, Sucking Reflex, Nutrition

INTRODUCTION

Babies with low birth weight are still a problem because it is one of the factors causing infant death (Rusmitawati et al., 2021; Zahra, 2022). 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. Babies with low birth weight are born with a birth weight of

less than 2,500 grams. Babies with low birth weight have a very small chance of survival and a 20-fold higher risk of death when compared to babies born with normal weight (Lawrence & Lawrence, 2022). In addition, BBLR babies, if they survive, will experience various health problems, such as growth or cognitive development problems and degenerative diseases in adulthood (Rerung Layuk, 2021). Based on 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. The global incidence of babies with low birth weight is 15.5%, ranging from 1-8 cases/1,000 live births, with a case fatality rate (CFR) ranging from 10-50%. Efforts to reduce babies with low birth weight by up to 30% by 2025, and so far, there has been a decrease in the number of babies with low birth weight compared to the previous 2012, which was 2.9%. With this, the data shows that there has been a reduction from 2012 to 2019, from 20 million to 14 million babies with babies with low birth weight (Pristya et al., 2020). Based on Indonesia's Child Health profile in 2020, Indonesia's Infant Mortality Rate (AKB) is 24/1000 live births (KH), while neonatal deaths in Indonesia are caused by babies with low birth weight (35.3%) and other causes (Rizka, 2021). According to the Ministry of Health (2018), the proportion of BBLR in Indonesia in children aged 0-59 months is 6.2%. One of the contributors to the cause of infant mortality is low birth weight. Babies with low birth weight itself is greatly influenced by various factors that can cause it, namely maternal factors, fetal factors, and environmental factors. Maternal factors include maternal age < 20 years or > 35 years, birth spacing that is too close, pregnancy complications such as anaemia, hypertension, preeclampsia, premature rupture of membranes, low socioeconomic conditions, poor nutritional status, smoking habits, and drinking alcohol. Fetal factors include congenital abnormalities and infarction, as well as environmental factors such as exposure to radiation and toxic substances (Ferinawati & Sari, 2020). Another thing that must be considered in babies with low birth weight is the need for a sense of security, namely hypothermia and the risk of infection. Babies with low birth weight must be considered for physical security because they are very sensitive to the surrounding environment, especially with body temperature; therefore, usually, babies with low birth weight are prone to hypothermia. Hypothermia occurs when the body temperature is below the normal range of 36.5°C--37.5°C. Signs and symptoms of hypothermia consist of major symptomatic signs, namely cold, palpable skin, chills, and body temperature below the normal range. Signs of minor symptoms are acrocyanosis, bradycardia, cyanotic nail base, hypoglycemia, hypoxia, filling of capillaries in less than 3 seconds, increased oxygen consumption, decreased ventilation, tachycardia, narrowing of blood vessels at the tips of the toes or hands, and skin that appears light blue when exposed to cold temperatures in neonates (Sucipto & Kep, n.d.). Theoretically, babies with low birth weight can experience hypothermia because the organ system has not fully functioned, and immature lungs can cause increased breathing and increased calorie needs. Babies with low birth weight is a major factor in increasing mortality, morbidity and disability in neonates; the long-term impact on babies with low birth weight is that they experience growth and development disorders, speech or communication disorders, neurological disorders and hyperactivity disorders for their future lives (Kusparlina, 2016). Babies with low birth weight can undergo hypothermia through several mechanisms related to the body's ability to maintain a balance between heat production and heat loss. Hypothermia occurs when body heat transfers to the surrounding environment, and there is a mechanism for the body to lose heat by conduction/propagation (wet baby diapers are not immediately changed, touching the baby with cold hands), convection/flow (the baby is close to the fan/air conditioner), radiation/radiating (the baby is placed in a cold room, and left naked), and

evaporation/yawning (the baby is not wiped after birth) in the body (Luisa, 2012). Respiratory problems will also appear that will interfere with the fulfilment of nutrition orally and potentially as well, to loss of heat in babies with low birth weight problems such as unstable body temperature, little subcutaneous fat, immature nervous system, and body temperature regulators, thus causing hypothermia (Farida & Yuliana, 2017). Babies with low birth weight are very susceptible to hypothermia because of the many changes that occur in the baby in adjusting from life inside the womb to life outside the womb. Considering that physiologically, the baby has not been able to adjust to the new environment after birth, environmental support so that the baby remains warm is very necessary. Newborns lose four times more heat than adults, resulting in a drop in temperature. Babies whose ability is not perfect to produce heat are very susceptible to a decrease in heat (Haryana et al., 2022). A particularly severe impact is that babies with low birth weight with hypothermia will face a higher risk of developing an infection. Babies with low birth weight with hypothermia will be more likely to die compared to the ones without hypothermia. Hypothermia can cause pain and even death in babies with low birth weight (Fairuza et al., 2020). Pharmacological action for babies with low birth weight is the administration of vitamin K to prevent deficiency bleeding (vit. deficiency K) through injection of 1mg IM once administered or per oral 2mg once administered or 1mg/3 times (at birth 3--10 days old and 4--6 weeks old). Non-pharmacological measures are hypothermia management, with observation actions to monitor the baby's body temperature, identify the cause of hypothermia, and monitor signs and symptoms of hypothermia. Therapeutic measures provide a warm environment, perform passive warmings such as giving blankets or wearing thick clothes for babies, changing wet clothes/linen, and perform external active warmings such as warm water compresses, warm bottles, and warm blankets (Andarini et al., 2023). The role of nurses need to implement these interventions on babies who have low birth weight is to fulfil the need for a sense of security, especially for those who experience hypothermia nursing problems, to maintain the stability of the baby's body temperature, and it is hoped that the baby's mother can understand how to prevent the baby's body temperature from dropping when the baby is already at home (Andarini et al., 2023).

Based on the above background, researchers are interested in lifting and conducting Nursing Care for High-Risk Infants in the Nicu Room of Waled Hospital, Cirebon Regency, in 2024.

RESEARCH METHODS

The research design used in this study is a case study on high-risk infants with 3 cases of the same diagnosis (Liu et al., 2014). The research was carried out on December 27, 2023, in the NICU room of Waled Hospital, Cirebon Regency

The research procedure in the case study consists of several stages, including the orientation phase, greeting and introducing yourself, Explaining the purpose and procedure of action, and Asking for readiness and time contract. Working phase: washing hands, paying attention to the ETT hose attached to the baby to see whether there is any bending/loosening, Providing position adjustment when the baby is after and before changing diapers/changing high-risk babies, Seeing if there is a sucking reflex in high-risk babies when given nutrition through OGT, Again make sure that the baby's position is correct.

RESULTS AND DISCUSSION

Case 1 Baby Mrs I was born with female gender on January 5, 2024, at 16.30 WIB. History of delivery G2P2A0 with 35 weeks of gestation, duration of delivery 45 minutes,

a baby born by cesarean section with BB 1370 grams, PB 42cm, LK 29cm, LD 23 cm, Red and dry skin condition. CHAPTER/BODY:-/+ The baby does not cry immediately, and there is no breathing. Nose lobes and chest retraction are visible. The baby looked weak and was treated in an incubator with a temperature of 31oC with O2 CPAP 50%, Peep 7, PIP 18 Spo2 96%. The results of the TTV test were obtained at a temperature of 37oC, pulse 185x/min, RR 42x/min, babies with OGT, INF AS and KN3B with APGAR score of 5--6 (moderate asphyxia). The patient has no past medical history or family medical history. In terms of physical appearance, Mrs. I's baby does not have any defects in her limbs; the patient is currently being cared for by a nurse in the NICU room. Relationship with parents, both father and mother of the baby, visit the Nicu room every day to see the development of the baby. Then, the patient was given cefotaxime drug therapy 2x15 mg, aminophylline 2x 2 mg, KN3B 1x/24 hours, and INF AS 1x/24 hours.

Case 2 Baby Mrs J was born with female gender on December 21, 2023, at 16.00 WIB. History of delivery G3P2Ao with 35 weeks gestation, duration of delivery 45 minutes, baby born by cesarean section with BB 1300 grams, PB 36 cm, LK 26 cm, LD 24 cm, Red and dry skin condition. CHAPTER/BODY:-/+ The baby does not cry immediately, and there is no breathing. Nasal lobes and chest retraction is visible, and the APGAR score is 5--6 (moderate asphyxia), The location of the baby's buttocks, at the time of the assessment on December 27, 2023, the baby's condition was weak, the baby was treated in an infant incubator, OGT was installed, O2 cpap was installed, 50%, Peep 7, PIP 18, INF KN 36+ AS 60% was installed, TTV test results N: 163/min, RR: 44x/ min, 5: 32°C with incubator temperature 31°C, Spo2: 96%, there is chest retraction. The patient has no past medical history or family medical history. In terms of physical appearance, Mrs. J's baby does not have any defects in her limbs; the patient is currently being cared for by a nurse in the NICU room. Relationship with parents, both father and mother of the baby, visit the Nicu room every day to see the development of the baby. The patient was given cefotaxime drug therapy 2x15 mg, aminophylline 2x 2 mg, KN3B 1x/24 hours, and INF AS 1x/24 hours.

Case 3 Baby Mrs S, gestational age 39-40 weeks, a baby born spontaneously with BBL 1465 grams, PB 40 cm, LK 27 cm, LA 23 cm, a baby born not crying immediately, shortness of breath (+), chest wall retraction (+), inactive movement (+), cyanosis (+), baby treated in an incubator with a temperature of 31oC, OGT installed, NIV/AC installed, FIO2 30%, PIP 16, PEEP 17, installed infusion pump kaen 3B 6cc/hour and AS 6%, test results TTV Pulse 136x/min, RR 42x/min, Temperature 36oC, Spo2 94%, APGAR Score 5-6. (moderate asphyxia). The patient has no past medical history or family medical history. In terms of physical appearance, Mrs. S's baby has no defects in her limbs; the patient is currently being cared for by a nurse in the NICU room. Relationship with parents, both father and mother of the baby, visit the Nicu room every day to see the development of the baby. The patient was given cefotaxime drug therapy 2x15 mg, aminophylline 2x 2 mg, KN3B 1x/24 hours, and INF AS 1x/24 hours. In case 1, the focus data of the study was obtained on Baby Mrs I, Born with female gender, on January 5, 2024, at 16.30 WIB. History of delivery G2P2A0 with a gestational age of 35 weeks, duration of delivery 45 minutes, a baby born by cesarean section with a BBL of 1370 grams. In case 2, the focus data of the study was obtained on Baby Mrs J, Born with female gender, on December 21, 2023, at 16.00 WIB. History of delivery G3P2Ao with 35 weeks gestation, duration of delivery 45 minutes, baby born by cesarean section with BBL 1300 grams. In case 3, the focus of the study data was obtained on Mrs S's babies at a gestational age of 39-40 weeks; the baby was born spontaneously with a BBL of 1465 grams, so the doctor confirmed that the patient was declared with low birth weight. Babies with low birth weight are babies with a birth weight of less than 2500 grams, regardless of the

gestational period. According to Aisyah and Ningrum (2023), BBLR is defined as a baby born with a weight of less than 2500 grams. Babies with low birth weight will carry the risk of death, impaired growth and development of the child.

The results of the assessment were obtained in case 1. The baby did not cry immediately, and there was no breathing. Nose lobes and chest retraction are visible. The baby looked weak and was treated in an incubator with a temperature of 31°C, OGT installed, O₂ CPAP 50%, Peep 7, PIP 18 SpO₂ 96%, TTV test results were obtained at 37°C, pulse 185x/min, RR 42x/min, infant with AS INF and KN3B APGAR score of 5-6 (moderate asphyxia). With nursing diagnosis: Ineffective breathing patterns are related to inhibition of breathing effort, and nutritional deficits related to the inability to swallow and digest food are evidenced by the installed OGT. It has not been resolved for 3x24 hours.

Meanwhile, in the results of the case study of 2 babies born who did not cry immediately, there was no breathing. Nasal lobes and chest retraction are visible, APGAR score is 5-6 (moderate asphyxia), The location of the baby's buttocks, at the time of the assessment on December 27, 2023, the baby's condition was weak, the baby was treated in an infant incubator, OGT was installed, O₂ cpap was installed, 50%, Peep 7, PIP 18, INF KN 36+ AS 60% was installed, TTV test results N: 163/min, RR: 44x/min, 5: 32°C with incubator temperature 31°C, SpO₂: 96%, there is chest retraction. With the nursing diagnosis :P Ineffective breathing management related to obstruction of breathing effort as evidenced by the patient's family saying that By. J had difficulty breathing, installed NIV ventilator RR 44x/min, Nutritional deficit related to the inability to swallow and digest food as evidenced by the installed OGT, Impaired skin and tissue integrity related to the side effects of therapy as evidenced by By.J's skin appears dry and flaky. It has not been resolved for 3x24 hours.

In case 3, the results of the assessment of the baby were not immediate crying, shortness of breath (+), chest wall retraction (+), inactive movement (+), or cyanosis (+). The baby was treated in an incubator with a temperature of 31°C, OGT installed, NIV/AC installed, FIO₂ 30%, PIP 16, PEEP 17, 3B kaen pump infusion 6cc/hour and AS 6%, Pulse TTV test results 136x/min, RR 42x/min, Temperature 36°C, SpO₂ 94%, APGAR Score 5-6. (moderate asphyxia). With nursing diagnosis: Ineffective breathing patterns related to obstruction of breathing effort are evidenced by the patient's family said By. S difficulty breathing, attached NIV ventilator RR 42x/min, Nutritional deficit related to the inability to swallow and digest food as evidenced by installed OGT. Not resolved for 3x24 hours

In line with Kurniasari et al. (2023) research, babies with low birth weight in the control group were intervened in accordance with routine standard procedures, namely the regulation of supinate sleep positions during the administration of enteral nutrition. Babies with low birth weights in the intervention group were adjusted to the supination sleep position during the administration of enteral nutrition, and after the administration of enteral drinking, OGT was adjusted for at least one hour. The headboard of the bed in the intervention group was raised 30 degrees during enteral nutrition. The incidence of intolerance to enteral drinking was evaluated by assessing the weights in the intervention group were adjusted to the supination sleep position during the administration of enteral nutrition, and incidence of hypothermia, bradycardia, desaturation, the presence or absence of bowel movements, the results of abdominal examination, increased abdominal circumference, and frequency of vomiting.

CONCLUSION

Babies with low birth weight in the control group were intervened in accordance with

routine standard procedures, namely the regulation of supine sleep position during enteral nutrition. Babies with low birth weight in the intervention group were adjusted to the supination sleep position during the administration of enteral nutrition, and then after the administration of enteral drinking, OGT was adjusted for at least one hour. The headboard of the bed in the intervention group was raised 30 degrees during enteral nutrition. The incidence of enteral drinking intolerance was evaluated by assessing the incidence of hypothermia, bradycardia, desaturation, the presence or absence of bowel movements, the results of abdominal examination, increased abdominal circumference, and the frequency of vomiting.

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