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NURSING CARE FOR LOW-BIRTH WEIGHT BABIES WITH HYPOTHERMIA USING KANGAROO MOTHER CARE: A CASE STUDY

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ABSTRACT

Low birth weight (LBW) infants are at risk of hypothermia due to immature thermoregulatory mechanisms. LBW is defined as a birth weight of less than 2,500 grams regardless of gestational age. Hypothermia can occur in LBW infants even in relatively warm environments, as newborns are unable to regulate their body temperature optimally. If not treated promptly, hypothermia may lead to serious illness or even death. To increase body temperature in LBW infants, an alternative therapy such as Kangaroo Mother Care (KMC) can be applied. This study aims to describe nursing care for LBW infants experiencing hypothermia using Kangaroo Mother Care therapy. A descriptive case study design was employed to identify nursing problems. The subject of this study was Baby J. The nursing diagnosis established was hypothermia. Nursing interventions focused on managing hypothermia through KMC therapy, which was administered twice daily for one hour over a period of three consecutive days. Prior to the intervention, an assessment was conducted to identify signs of hypothermia, such as body temperature, lip color, and the infant's general condition. During therapy, Baby J's mother received direct guidance due to limited knowledge about the correct application of KMC. This required time and educational support from healthcare professionals. After 72 hours of intervention, evaluation results showed an increase in the infant's body temperature to within the normal range, warm skin, and improved breastfeeding activity. These findings indicate a reduction in hypothermia symptoms. The study concludes that KMC is beneficial in supporting thermoregulation in LBW infants. Kangaroo Mother Care therapy has proven effective in increasing body temperature in LBW patients.

Keywords : Low birth weight, Hypothermia, Kangoroo mother care

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INTRODUCTION

Low birth weight (LBW) is one of the factors that causes more pain and death early in a baby's life, when the baby is 28 days old (Nur Hidayah & Ayu Utari, 2023). In the World Health Organization (2018) reported that LBW births accounted for 15.5% of newborn births worldwide, more than 95% in developing countries and twice as many in developed countries (Putri Perdani, 2021). babies with LBW condition cause the death of the newborn. Low birth weight (LBW), which is the baby's body weight is less than 2500 grams. According to data compiled by the Directorate of Nutrition and Maternal and Child Health from 34 provinces in Indonesia in 2022, there were 111,719 babies, or 2.5% of the total babies, who were in the LBW condition. This baby's condition is caused by congenital abnormalities in the baby, pregnancy complications, and malnutrition in pregnant women (Ministry of Health of the Republic of Indonesia 2021) in According to data from the Denpasar City Statistics Agency in 2023 Bali Province, the number of babies born with BBRL is 2,146. Low birth weight (LBW), which is a baby's body weight of less than 2500 grams, is an important sign of maternal and fetal health. In addition, LBW is a predictor of infant mortality, growth disorders, and chronic health conditions in infants. (Rahmah Pertiwi et al., 2022)

Babies with LBW are particularly susceptible to system problems, one of which is body temperature instability (Ramadhania et al., 2024). The infant mortality rate in Bali Province in 2020 was 3.5 per 1,000 live births, which is stable compared to the 2019 AKB of 3.5% per live birth. The largest neonatal infant mortality rate in 2020 was the LBW incident, which accounted for 40% of all infant deaths. (Artini et al., 2023). Hypothermia can occur in babies who experience low birth weight even though they are in a relatively warm room, therefore the newborn cannot regulate his body temperature adequately, so if not treated immediately, the baby will lose heat, known as hypothermia, and be at high risk of getting sick or dying. Babies with low birth weight usually do not have enough protective systems to adjust to the extrauterine environment, making them susceptible to problems, especially temperature instability. (Farida et al., 2017). Unstable LBW temperatures are caused by fat reserves under thin skin, immature brain heat regulation centers, large surface area to weight ratios, and decreased heat production due to fat. LBW babies can experience hypothermia quickly and take a long time to predict their temperature Babies with low temperatures inhibit bodily processes. Usually, the heart rate and breathing become slow and consciousness goes undetected. If this condition is not treated immediately, it can cause death in newborns (Sari Agustin & Ferina, 2022)

Kangoroo mother (KMC) treatment in LBW can be used for LBW treatment. Babies weighing less than 2,000 grams have shown that KMC treatment can reduce infant mortality by 40% Kangaroo mother care (KMC) treatment for LBW can be done KMC can reduce LBW mortality. Kangaroo mother care (KMC) is the global standard for the care of all newbornsKMC has been shown to prevent newborn death for 72 hours to 28 days after birth, KMC can lower LBW mortality. Kangaroo mother care (KMC) is the global standard for the care of all newborns (Septina Margaretta & Ratna Gayatri, 2023)

Some of the studies conducted include the effect of kangaroo mother care (KMC) measured for 1 hour on the body temperature of babies with low birth rate (LBW) in the perinatology room of Boyolali Hospital with a Charcoal Lighter (p=0.05), (Deda Prajani et al.,

2019). This study aims to describe the treatment process of LBW babies with hypothermia using the Kangaroo Mother Care method as a thermal regulation strategy.

METHOD

In this study, a descriptive research design was used using a case study with 1 LBW patient with hypothermia, the procedure in providing therapy was a KMC session of 1 hour twice a day for 3 days, This research was conducted at Karangasem Hospital, 2023. The instruments used were observation records, temperature records and treatment formats that focused on the patient's response to kangaroo mother care therapy. Data was collected through interviews, observations and documentation of the development of the patient's condition. This study has received approval from hospitals and respondents, while upholding research ethical principles such as informed consent obtained from the patient's parents, data confidentiality, and patient rights.

RESULTS

The administration of kangaroo mother care therapy is carried out twice a day, for one hour before the intervention is given, an assessment is carried out in advance for signs and symptoms of hypothermia in LBW such as the patient's body temperature, the patient's lip color, the patient's general condition, so that the patient's condition can be known before the intervention is carried out. Formative evaluation can be documented in each intervention, in hypothermia it can be evaluated by looking at the patient's response objectively and after the intervention is completed, the condition/characteristics of the wound and signs of hypothermia are reviewed for reobservation. Based on the administration of KMC therapy for 1 hour, the results were obtained, namely an increase in the patient's temperature. So it can be concluded that there is a decrease in hypothermia in By. J

Table 1.1 body temperature before and after KMC therapy per day

	Before KMC	After KMC
Day 1	35.1 °C	36.3 °C
Day 2	36.5 °C	36.7 °C
Day 3	36.9 °C	37.1 °C

DISCUSSION

By. J experienced a decrease in body temperature and was given a kangaroo mother's care intervention for 3 days and each therapy was given for 1 hour. The administration of this therapy is very petrified for the rise in temperature by. J. in the provision of kangaroo mother care techniques for mothers by. J is always guided for proper giving. However, in this case, the

administration of therapy requires time and support from health workers, due to the lack of knowledge of the mother, so in providing therapy it takes time to provide education to the mother first. The study also noted that By. J experienced weight gain during the administration of the kangaroo mother's treatment therapy. Skin-to-skin contact improves thermoregulation in By. A: These findings are consistent with (Ismaya et al., 2022) who reported an increase in body temperature after KMC ranging from 35.7 °C to 36.9 °C

Other studies have also shown that the administration of kangaroo maternity care therapy has an effect on increasing body temperature in babies with low birth weight. (Health et al., 2023). Babies suffering from hypothermia who do not immediately get treatment to maintain their body temperature are at risk of infection and other complications, such as jaundice and bleeding in the lungs and can lead to death. Prolonged hypothermia can lead to edema, sclerema, respiration, especially pulmonary bleeding), and jaundice. (Catur Ria Wati et al., 2019) Short-lived jaka complications due to hypothermia cause acidosis, hypoglycemia, and blood clotting disorders, as well as increased esikko for respiratory disorders (Rahmawati et al., 2024).

This study's strength lies in its systematic documentation and the clearly observable clinical responses following the intervention. However, its limitations include the use of only a single subject, which restricts the generalizability of the findings. Additionally, the need for extended time to educate the mother prior to the intervention, as well as the short duration of observation, limits the ability to assess the long-term effects of kangaroo mother care (KMC).

CONCLUSION

Kangaroo mother care, given daily for 1 hour for 3 days, was associated with improved temperature regulation in infants with LBW with hypothermia. It supports KMC as a viable and low-cost nursing intervention in resource-constrained settings.

RECOMMENDATION

It is recommended that neonatal nurses incorporate structured KMC protocols for hypothermic LBW infants to promote safe thermal regulation and reduce the risk of complications.

REFERENCES

Artini, N. K. M., Erawati, N. L. P. S., & Senjaya, A. A. (2023). The Relationship Of Maternal And Age Equality With The Incidence Of Low Birth Weight At Bali Royal Hospital General Hospital. *Journal Of Midwifery*, *11*(1), 33–40. Https://Doi.Org/10.33992/Jik.V11i1.2312

Catur Ria Wati, R., Ethics, R., Esti Yunitasari, And, Midwifery Studies, P., & Medicine, F. (N.D.). *The Effect Of Kangaroo Care On The Physiological Response Of Babies With Low Birth Weight*. Journal Of Pediatric Nursing Https://Doi.Org//10.20473/Pmnj.V5i2.13333

Deda Prajani, W., Dwi Agussafutri, W., Kusuma Husada Surakarta Nursing Undergraduate Study Program, S., Pandan Arang Boyolali, R., & Kusuma Husada Surakarta Study Program, S. D. (2019). *The Effect Of The Application Of Kangaroo Mother Care (Kmc) For One Hour On The Body Temperature Of Babies With Low Birth Weight (Lbw) In The Perinatology Room Of Rsk Pandan Arang Boyolali.*

Farida, O.D., Aryuliana, And, Krida Husada Nursing Academy, A., & Akper Krida Husada Kudus, D. (2017). Administration Of Kangaroo Mother Care (Kmc) Method On Body Temperature Stability And Lbw Baby Weight In The Carnation Room Of Ra Kartini Jepara Hospital. *Journal Of The Nursing Profession*, *4*(2).

Ismaya, S., Sekarwangi, R., Sukabumi, K., & Kunci, K. (2022). The Effect Of Kangaroo Method Treatment On Weight Gain And Body Temperature Stability In Lbw In The Perinatology Room Of Sekarwangi Hospital, Sukabumi Regency. *Journal Of The Health Society*|, *11*(2).

Health, J., Kalimantan, P. B., Medicine, F., Mulawarman, U., Apriana, R., Syahrir, A., & Sunge, G. W. (2023). The Application Of The Kangaroo Mother Care (Kmc) Method To Maintain The Stability Of The Body Temperature Of Babies With Low Birth Weight (Lbw) At Toto Kabila Gorontalo Hospital. In *Jkpbk* (Vol. 6, Edition 2). Http://E-Journals.Unmul.Ac.Id/Index.Php/Jkpbk

Nur Hidayah, S., & Ayu Utari, D. (2023). The Kangaroo Method Increases Low Birth Weight In Babies. In *The Indonesian Journal Of Midwifery (* Vol. 7, Edition 1). Https://Doi.Org/10.26751/Ijb.V7i

Putri Perdani, Z. (2021). The Effect Of Kangaroo Mother Care On Premature Baby Weight Gain. *Muhamadiyah University Of Tangerang*, *6*(2). Doi (Pdf): Http://Dx.Doi.Org/10.31000/Jkft.V6i2.5746.G2967

Rahmah Pertiwi, D., Rizona, F., Nursing Professional Study Program, Sriwijaya University, M., & Department Of Nursing, Sriwijaya University, D. (2022). *National Nursing Seminar "Healthy And Empowered Elderly During The Covid 19 Pandemic" In 2022 Therapeutic Effects Of Kangaroo Mothers In Low-Birth Weight Infants With Hypothermia: A Literature Review 1*.

Rahmawati, R., Mukarramah, S., Bachelor Of Applied Midwifery, P., & Health Makassar, P. (2024). The *Obstetrics Media Of The Makassar Health Polytechnic Assessed The Effectiveness Of The Kangaroo Method In Preventing Hypothermia In Babies With Low Birth Weight At Sheikh Yusuf Gowa Hospital*.

Ramadhania, R., Herliana, L., Purnama, M., Study Diii Nursing, P., Ministry Of Health Tasikmalaya Keywords, P., & Nursing, A. (2024). *Nursing Care Of Babies With Low Birth Weight (Lbw) With The Application Of Kangaroo Mother Care (Kmc) To The Baby's Body*

Temperature In The Perinatology Room Of Dr. Soekardjo Hospital, Tasikmalaya City. Pp. 2(1), 1–6. *Journal Of Nursing*, *2*(1), 1–6. Https://Doi.Org/10.37160/Tnj.V2i1.259

Sari Agustin, C., & Ferina, F. (2022). Lbw Body Temperature Stabilization Using The Kangaroo Method: Evidence-Based Case Report (Ebcr). *Siliwangi Health Journal*, *3*(2), 231–240. Https://Doi.Org/10.34011/Jks.V3i2.1234

Septina Margaretta, S., & Ratna Gayatri, P. (2023). Kangaroo Mother Care (Kmc) Intervention In Infants With Low Birth Weight: A Review Of The Literature. *Journal Of Pediatric Nursing*, *6*(1). Https://Doi.Org/10.26594/Jika.1.2.2018