



THE EFFECT OF KANGURU MOTHER CARE METHOD TO CHANGE OF BODY TEMPERATURE IN LBW (LOW BODY WEIGHT) BABIES

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ABSTRACT

Keywords

Introduction: Low Birth Weight Babies (LBW) are babies with birth weight less than 2500 grams regardless of gestation. Babies who have low birth weight tend to experience hypothermia; this is due to the thin subcutaneous fat in the baby so that ambient temperature very easily influences it. Infants with low birth weight (LBW) require proper care so that no dangerous things happen, one of them is the Kangaroo mother care method Treatment. The purpose of this study was to determine the effect of kangaroo mother care method treatment on changes in body temperature in LBW infants. **Method:** The research design used was pre-experimental with the design category (One group pretest-Post). The sampling technique used was the consecutive sampling technique. The independent variance in this study was the maintenance of the kangaroo mother care method. The dependent variable in this study was a change in body temperature. Data was collected through analytical observation with the Wilcoxon test to determine whether there were differences between the two samples. **Results:** Observation results of measurements of body temperature changes in LBW infants showed changes that were given to treatment interventions in kangaroo mother care method of body temperature with an average body temperature of 36.30C, and two babies experienced a decrease in body temperature after being given intervention. Kangaroo mother care method treatment with a value of Z -3,114 with a significant level of 0.002. **Conclusion:** From the results of the above studies, it is proven that the treatment of kangaroo mother care method can increase body temperature in infants who experience LBW, so the treatment of kangaroo mother care method can be a substitute for the incubator in overcoming hypothermia in LBW infants.

Kangaroo mother care method, body temperature, LBW

INTRODUCTION

Low birth weight babies are risk factors that contribute to the death and birth of a baby, especially during the perinatal period (Indonesia Ministry of Health, 2007). Premature babies who have low birth weight tend to experience hypothermia; this is due to the thin subcutaneous fat in infants so that it is very easily influenced by ambient temperature (Gil, 1996). Babies with low birth weight (LBW) need proper care so that no harmful things happen, one of which is the Care of the Kangaroo mother care method. Besides that, this is very practical and can not be necessary to require high costs. So far incubator care has been provided for babies who have low birth weight from Wahidin Sudirohusodo Hospital in Mojokerto regency, according to the Nurse in the Baby Room the care of the kangaroo mother care method has not been done because it is not effective in using this PMK method.

Kangaroo method treatment was first introduced by Ryan and Martinez in Bogota, Columbia in 1979 as an alternative method of LBW care amid the high rates of low birth weight and the health facilities are limited. This method imitate of animals kangaroos have pouches whose baby is born prematurely, and after the kangaroo's baby was born treated in the pouch kangaroo mother to prevent the baby kangaroo out of cold and get the nutrients from the mother kangaroo.

KMC is an alternative methods of replacement incubator on the care of LBW with some effective ways to meet the basic need of the baby such as baby's skin contact to the mother skin, where the mother's body as a thermoregulator for the baby, so that the baby gets warmth (avoiding the baby from hypothermia) if the mother's body temperature decrease, then the baby's body temperature also decrease (Rulina, Primpim, 2000). KMC makes breastfeeding easier, protection from infection, stimulation, safety and affection. Kangaroo method is a continuous method of offering early by touching the skin to the skin between mother and baby LBW in a position like kangaroo (Hadi, 2005).

WHO data in 2013 shows the number of babies born in Indonesia in 2010 there were 4,371,800 people. While of this amount 15.5 / 100 live births or as many as 675,700 born premature, Indonesia is ranked 9th in the world with an LBW percentage of more than 15.5% of births each year (Pramono, 2009). Based on the results of research conducted by Worku B and Kassie A by A randomized controlled trial was conducted over a 1-year period (November 2001–November 2002) in Addis Ababa to study the effectiveness of early Kangaroo mother care before stabilization of low birthweight infants as compared with the conventional method of care. There were 259 babies weighing less than 2000 g during the study period and a total of 123 (47.5 per cent) low birthweight infants were included in to the study. The study showed that 14/62 (22.5 per cent) of KMC vs. 24/63 (38 per cent) CMC babies died during the study ($p < 0.05$ and CI of 95 per cent.) The majority of deaths occurred during the first 12 h of life. Survival for the preterm low birthweight infants was remarkably better for the early kangaroo mother care group than the babies in the conventional method of care in the first 12 h and there after. More than 95 per cent of mothers reported that they were happy to care for their low birthweight babies using the early Kangaroo mother method. It was recommended to study the feasibility and effectiveness of Kangaroo mother care at the community level.

LBW is a major factor in increased mortality, morbidity and disability of neonates, infants, and children, and has a long-term impact on their future lives. The low birth weight which is not handled properly can lead to problems in all organ systems of the body including respiratory problems (meconium aspiration, neonatal asphyxia), impaired systemic digestion (small stomach), urinary system disorders (rudimentary kidney), nervous system disorders (stimulation response slow). Besides, that LBW can experience mental and physical disorders, also develop and grow (Indonesia Ministry of Health, 2007).

One of the non-incubator treatments for the incidence of LBW infants using Kangaroo mother care method Treatment. Treatment of the Kangaroo mother care method in LBW infants is very useful in increasing body temperature in LBW infants (PN, APX, & JRD, 2010).

The purpose of this study was to analyze the effect of kangaroo mother care method treatment on changes in body temperature in LBW infants.

RESEARCH METHOD

The research design used was pre-experimental with the design category (One group pretest-Post). The selection of one group using consecutive sampling technique. Following sampling is sampling based on research criteria, each respondent who meets the research criteria is included in the study for a certain period.

Table 1.1 Research design Effect of Kangaroo mother care method Treatment on Changes in Body Temperature in LBW Infants

Subject	Pretest	Treatment	Posttest
	O	I	OI
A	time 1	Time 2	Time 3

Information :

A: Subject (LBW).

O: Observe body temperature before PMK.

I: Intervention (care for kangaroo mother care methods)

RESULT

Table 1.3 Effect of Kangaroo mother care method Treatment on Changes in Body Temperature in LBW Infants.

Temperature	Frequency	Percentage (%)
Increase body temp	10	58,82
Stable body temp	4	23,52
Decrease body temp	3	17,64
Jumlah	17	100

At the measurement of body temperature before and after treatment of the kangaroo mother care method showed an increase in body temperature there were ten frequencies with a percentage of 58.82%, body temperature remained there were four frequencies with a percentage of 23.52%, and body temperature decreased there were three frequencies with a percentage of 17.64 %. According to the Wilcoxon statistical test calculation shows p 002 there is an effect of the treatment of kangaroo mother care methods on changes in body temperature in LBW infants

DISCUSSION

The Measurement Results of Body Temperature Before Kangaroo Mother Care Method.

Body temperature before the treatment intervention for kangaroo mother care method was obtained with an average body temperature of 360 C in LBW infants. Cold stress can increase death and inhibit growth, while hypothermia and fluctuating temperatures can cause apnea (Pulmonology & Syndrome, 2002).

The research conducted by Raudatul Hikmah contained in e-journal 2016 said LBW babies due to infant birth weight <2500 grams, were susceptible to problems in increasing heat loss and inability to maintain the temperature of the baby's body due to little heat or even has not been formed so that complications can occur such as hypothermia.

Body Temperature After Kangaroo Mother Care Method

After being treated with the kangaroo mother care method the body temperature of LBW babies increased by an average of 36.20C, and three babies experienced a decrease in body temperature. By research conducted by Hj. Nurlaila et al. in the journal Husada Mahakam in 2015 showed that there were significant differences in the baby's body temperature both in the group of mothers who performed FMD well and the group of mothers implementing. PMK was not good it can be seen from the average score of the mothers who carried out PMK well. It is 37,082 which shows that the average baby's body temperature in the group of mothers who perform PMK well. It does not have anyone suffering from hypothermia, i.e., when the baby's temperature is <36.50 while the group of mothers who do PMK is not good as an average value 35,508 which shows that in the group of mothers who carry out PMK is not good, the baby experiences hypothermia because the baby's temperature is <36.5°. This is consistent with research conducted by Verma, p and Verma V was published on 29th Nov 2013. they were stated It's evident that before KMC 82.5% of babies were hypothermic but after KMC 96.2% babies became normothermic within half an hour which was found highly significant (p-value <0.0001).

Based on the other result research of Almeida Cm Et Al About Effects Of Kangaroo Mother Care On The Vital Signs Of Low-Weight Preterm Newborns, they got results there were no significant changes in mean arterial pressure ($p > 0.05$) or heart rate ($p > 0.05$) after applying kangaroo mother care.

However, there were significant increases in axillary temperature ($p < 0.05$) and peripheral oxygen saturation ($p < 0.05$), and a significant decrease in respiration rate ($p < 0.05$). It's the mean Kangaroo mother care promotes improvement in body temperature, increased peripheral oxygen saturation (thus

improving tissue oxygenation), and decreased respiration rate (thus providing greater respiratory comfort for the newborns). therefore it's recommended that kangaroo mother care contributes towards beneficial alterations in the low-weight newborns' vital signs.

The mechanism of action for kangaroo encoded treatments is the same as the sophisticated treatment in the incubator that functions as a thermoregulatory providing a thermoneutral environment for babies every neonate through conduction heat and radiation. The terminal environment is the temperature environment so that the baby can maintain optimal (36,5-37,50C) by releasing minimal energy/calories, especially LBW babies whose supply of calorie sources is very limited. Heat flow through conduction is identical to maternal-infant skin contact as in the incubator of heat conduction from the incubator body to the baby's skin. Radiation heat is warm air inside the incubator like warm air in/between blankets/baby kangaroo clothes(Thukral, Chawla, Agarwal, Deorari, & Paul, 2008) .

Effect of Kangaroo Mother Care Method Treatment to the Change of in Body Temperature in LBW Babies

Based on the Wilcoxon test the value: based on negative rank -3.114a with p 002 significant means that there is an effect of the treatment method for changes in body temperature in LBW infants.

Treatment of the Kangaroo mother care method is one way to increase body temperature in infants who experience hypothermia, heat flow through conduction is identical to maternal skin contact as an incubator of heat conduction from the incubator. Blankets. This method is very practical without side effects and does not need to pay a high cost (Sharma, Murki, & Oleti, 2016).

Kangaroo care method is normal and even has no longer experienced hypothermia. Also, there is a decrease in body temperature; this is because of the mother's body temperature decreases, so the baby's

body temperature is treated by the kangaroo mother care method decreases. Based on the rate of speed of heat loss in the baby's body which is carried out by the care of the kangaroo mother care method, the mother's body temperature can affect the decrease in body temperature in the baby.

This is consistent with research conducted by (Ryabikov et al., 2007). Namely in the group of mothers who carried out FMD well. There were no babies who suffered from hypothermia on the contrary in mothers who did not carry out FMD suitably most of the babies experienced hypothermia. so this confirmed that mothers who did FMD were not better at risk the baby suffered hypothermia compared to the mother who carried out FMD well. The other research conducted by (Worku, 1999) in Department of Pediatrics and Child Health, University of Gondar, Gondar, Ethiopia almost 84% of infants in our study continued KMC at home, and those that continued KMC were more likely to survive. Our study adds to the fact that KMC is still very important intervention survival after discharge in the low-income country setting.

Conde-Agudelo A, Diaz-Rossello JL were also stated in their first published research on 23 August 2016 that's compared with conventional neonatal care, KMC was found to reduce mortality at discharge or at 40 to 41 weeks post menstrual age and at late follow up, severe infection / sepsis, nosocomial infection/sepsis, hypothermia, severe illness, and lower respiratory tract disease. Based on the main result that were twenty-one studies, including 3042 infants, fulfilled inclusion criteria. 19 studies evaluated KMC in LBW infants after stabilization, one evaluated KMC in LBW infants before stabilization, and one compared early-onset KMC with late-onset KMC in relatively stable LBW infants. Sixteen studies evaluated intermittent KMC, and five evaluated continuous KMC.

CONCLUSION

The results of this study indicate that Kangaroo mother care method Treatment can increase body temperature in infants who experience hypothermia because it is identical to heat flow through conduction, which is maternal-baby skin contact as in incubator heat conduction from the incubator body such as warm air in/between kangaroo blankets.

REFERENCES

- Gil, B. (1996). Loss of temperature or Hypothermia of newborns in the birth-room. International Confederation of Midwives. In *10 Barley Mow Passage Chiswick London W4 4PH24. Triennial Congress.* (p. 23: 91).
- Indonesia Ministry of Health. (2007). Protocol of Measurement and Investigation. *Riset Kesehatan Dasar, 22–23.*
- PN, N., APX, R., & JRD, L. (2010). Humane care newborn low-weight (kangaroo mother method): mother's perceptions. *Revista Gaucha de Enfermagem, 31(1), 48–54.*
- Pramono, M. S. (2009). Risiko Terjadinya BBLR (Berat Bayi Lahir Rendah) Menurut Determinan Sosial, Ekonomi dan Demografi di Indonesia. *Buletin Penelitian Sistem Kesehatan, 12 no 2, 127–132.*
- Pulmonology, S. on P., & Syndrome, S. on O. S. A. (2002). Clinical Practice Guideline: Diagnosis and Management of Childhood Obstructive Sleep Apnea Syndrome. *Pediatrics, 109(4), 704–712.*
- Ryabikov, A., Malyutina, S., Ryabikov, M., Kuznetsova, T., Staessen, J. A., & Nikitin, Y. (2007). Intrafamilial Correlations of Carotid Intima-Media Thickness and Flow-Mediated Dilation in a Siberian Population. *American Journal of Hypertension, 20(3), 248–254.*
<https://doi.org/10.1016/j.amjhyper.2006.09.005>

Sharma, D., Murki, S., & Oleti, T. P. (2016). To compare cost effectiveness of “Kangaroo Ward Care” with “Intermediate intensive care” in stable very low birth weight infants (birth weight). *Italian Journal of Pediatrics*, 42(1), 64. <https://doi.org/10.1186/s13052-016-0274-3>

Thukral, A., Chawla, D., Agarwal, R., Deorari, A. K., & Paul, V. K. (2008). Kangaroo mother care-an alternative to conventional care. In *Indian Journal of Pediatrics* (Vol. 75, pp. 497–503). <https://doi.org/10.1007/s12098-008-0077-7>

Worku, B. (1999). The low birth weight infant in the Ethio-Swedish Children’s Hospital, Addis Ababa. *Ethiopian Medical Journal*, 37(2), 111–119.