Journal Of Nursing Practice
https://thejnp.org/
ISSN: 2614-3488 (print); 2614-3496 (online) Vol.8 No.1. October 2024. Page.215-219

Effect of Using Polyethylene Plastic Bags against Increased and Stable Body Temperature in Low Birth Weight Babies (LBW) in the Nicu Room of SLG Kediri Hospital

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ABSTRACT

Background: Low Birth Weight Babies often experience unstable body temperature which tends to be low/hypothermia. The method to prevent hypothermia is to use polyethylene plastic bags.
Purpose: The aim of this study was to analyze the effect of using polyethylene plastic bags in the increase and stability of body temperature in LBW in the NICU room at SLG Kediri Hospital.
Method: The design of this study was Quasy Experimental, using Pre Test and Post Test approaches. Sampling by Accidental Sampling. This study was conducted on 30 BBLR babies with a weight of < 2500 grams. Data collection through observation sheets with the time of conducting research in November-December 2023 in the NICU room of SLG Kediri Hospital. Data analysis used to test the influence of two variables in this study is the Wilcoxon.
Results: It is known that the pre-test body temperature before the intervention using polyethylene plastic bags was < 36.5 ℃ for 28 out of 30 respondents (93%). And those who experienced an increase and stability in body temperature were 26 respondents (87%), and 4 respondents did not experience an increase and stability in body temperature. The statistical test in this study used the Wilcoxon test, the results of this statistical test obtained the Asymp value. Sig = 0.000.
Conclusion: It can be concluded that the hypothesis is accepted. This means that there is a difference between the results of body temperature measurements for the pre-test and post-test. So it can be concluded that there is an influence of the use of polyethylene plastic bags on the increase and stability of body temperature in low birth weight (LBW) babies in the NICU room at SLG Kediri Hospital. The use of polyethylene plastic bags appropriately can reduce evaporation and heat loss. Plastic as a thermoplastic polymer group can prevent heat loss caused by evaporation and radiation, so as to increase the baby's temperature.

Keywords: hypothermia, low birth weight, neonates

Received August 10, 2024; Revised September 12, 2024; Accepted October 5, 2024
DOI: https://doi.org/10.30994/jnp.v8i1.653

ISSN: 2614-3488 (print); 2614-3496 (online) Vol.8 No.1. October 2024. Page.215-219

BACKGROUND

Low birth weight infants (LBW) are infants who are born with birth weight < 2500 grams regardless of gestation period (Kosim, Sholeh, 2012). LBW often experience several health problems, one of which is body temperature instability. is body temperature instability, body temperature tends to be low/hypothermia (Roychoudhury & Yusuf, 2017).

In Indonesia, 56% of infant mortality occurs in the neonatal period. and that caused by low birth weight babies (LBW) amounted to 38.85% and the results of Riskesdas in 2018 the prevalence of LBW in Indonesia was 6.2%. Based on data from the Directorate General of Public Health in 2019, one of the most common cause of neonatal deaths is low birth weight babies which amounted to 35.3% (Indonesian Ministry of Health, 2020). The incidence of LBW in SLG Hospital Kediri in January-May 2023 there were 847 baby births and 130 of them were LBW. Whereas in one month, namely the month of July 2023 alone there were 33 LBW patients, and for the average LBW patient every month as many as 30 patients. While the mortality rate due to hypothermia neonates weighing less than 2,500 grams is as much as 98% if 32°C; 90% if the temperature is between 32°C-35°C; and drops to 23% if the temperature is maintained above 35°C (Roychoudhury & Yusuf, 2017).

The NICU room is a place to treat LBW comprehensively. comprehensively. One of the treatments for LBW patients is that they must be treated in the incubator to prevent hypothermia, and should be when the LBW patient has been put into the incubator then the his body temperature can immediately increase, but in reality in LBW patients, their body temperature is difficult to increase if only by put into the incubator alone. Whereas babies with hypothermia have a mortality risk 4 times greater than infants with normothermia. normothermia. The risk of mortality increases to 15 times if the body temperature drops to <35˚C. Mortality risk due to hypothermia reaches peaks within 24-72 hours after birth, and the risk increases when hypothermia occurs within the first 12 hours after birth (Harianto, 2014).

Thermoregulation or body temperature regulation is a very important and challenging aspect in the care of low birth weight infants or LBW. Normal body temperature results from a balance between the production and body heat loss. One of the special problems in infants, especially low low birth weight infants is their inability to maintain a normal body temperature. normal body temperature. LBW will quickly lose body heat and become hypothermic, this is because the body heat regulation center is not yet functioning properly, their metabolism is low (Dainty Maternity, 2018). LBW are susceptible to hypothermia due to the low subcutaneous fat tissue fat tissue while the body surface is large (Sukarni, 2014).

There are several ways that can be done to prevent hypothermia in LBW, including infant warmer, skin to skin, delaying cord cutting, giving head protection (hat), plastic bag/wrap, exothermic bed, and warming gas (Trevisanuto, et al., 2018). A low-cost technological method that can be used to prevent hypothermia is the use of polyethylene plastic bags. The use of polyethylene plastic bags in LBW is one way to prevent hypothermia recommended by The Neonatal Resuscitation Program by covering and enveloping all parts of the baby's body using polyethylene plastic bags. parts of the baby's body using polyethylene plastic bags (Jacqueline Smith 1 2013). Polyethylene plastic bags reduce evaporation and heat loss. Plastic as a class of polymers that are thermoplastic can prevent heat loss caused by evaporation and radiation, so as to increase the temperature of the baby compared to standard thermoregulation care. Polyethylene plastic bags are considered safe for babies, easily available at very economical prices, and effective in controlling body temperature quickly so that the body's metabolism will also become normal and have an impact on the stability of vital signs in LBW ((Trevisanuto, dkk., 2018).

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Based on the description and results of the preliminary study above, the researcher is interested in conducting research on the effect of the use of polyethylene plastic bags on the increase and stability of body temperature in LBW in the NICU room of SLG Kediri Hospital.

OBJECTIVE

This study aim to analyze the effect of using plastic bags polyethylene plastic bags on the increase and stability of body temperature in LBW in the NICU room of SLG Kediri Hospital.

METHOD

The research method used in this study is Quantitative. With a Quasi Experimental design, using a Pre Test approach before being given treatment which is then measured by the Post Test after being given treatment to see the effect of using polyethylene plastic bags on increasing and stabilizing body temperature in LBW in the NICU room of SLG Kediri Hospital.

The samples used in this study were all LBW who accidentaly taken by the researchers at the time of data collection in the NICU room of SLG Kediri Hospital, totaling 30 respondents. The technique used to take samples in this study was accidental sampling. Independent variables in this study is the use of polyethylene plastic bags, and variable dependent is the increase and stability of body temperature in LBW. Data collected using Observational sheet and analyzed with Wilcoxon Test based on SPSS.

RESULTS

Table 1. Result of Respondents based on Body Temperature before and after the intervention using polyethylene plastic bags in the NICU Room of SLG Kediri Hospital on November 01, 2023 - December 31, 2023

Body Temperature	Intervention of using polyethylene plastic bags			
	Before Intervention		After 60 mnt Intervention	
< 36,5^{0}C	28	93%	2	7%
36,5^{0}C – 37,5^0 C	2	7%	28	93%
> 37,5^0 C	-	-	-	-

Based on table 1 it was found that most respondents at the time before the intervention of using polyethylene plastic bags their body temperature was < 36.5 ℃ as many as 28 respondents (93%).

It was found that most respondents experienced an increase in body temperature after 60 minutes of intervention the use of polyethylene plastic bags, namely with a body temperature of 36.5 ℃ - 37.5 ℃ as many as 28 respondents (93%).

Table 2. Statistic Result
Wilcoxon Signed Ranks Test

		N	Mean Rank	Sum of Ranks
Post Test Temperature	Negative Ranks	2	14.50	29.00
Pre Test Temperature	Positive Ranks	26	14.50	377.00
	Ties	2		
	Total	30		

Test Statistics

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	Post Test Temperature Pre Test Temperature
Z	-4.536
Asymp Sig. (2 tailed)	0.000

The statistical test in this study used the Wilcoxon test, the hypothesis was rejected if the Asymp. Sig> 0.05 and the hypothesis is accepted if the Asymp. Sig < 0.05. Based on the statistical test results, the Asymp. Sig = 0.000. So it can be concluded that the hypothesis is accepted. This means that there is a difference between the results of body temperature measurements for pre and post tests. So it can be concluded that there is an effect of using polyethylene plastic bags on the increase and stability of body temperature in low birth weight babies (LBW) in the NICU room of SLG Kediri Hospital.

DISCUSSION

The results of the study of 30 LBW respondents in the NICU room at SLG Kediri Hospital showed that most of the respondents, namely 28 or 93% of respondents, showed body temperature stability after using polyethylene plastic bags for 24 hours. There were 2 or 7% of respondents who experienced an increase in temperature but did not show normal body temperature stability, within 24 hours there was a body temperature> 37.5 ℃ in the incubator. In respondents whose temperature is not stable and tends to increase because patients who are more than 10 days old and with a body weight > 2000 grams have adapted to the outside environment and have received more nutrients (food or drink).

Prevention of hyportemia in LBW is the main thing. This is not only done in the first 1 hour after the birth of the baby, but must be done continuously so that the baby does not experience hypothermia (Sugiarti, 2015).

Actions to prevent hypothermia by maintaining environmental temperature with passive and active techniques. Passive techniques are maintaining the temperature with tools that provide warm effects on babies such as the use of head hats and baby plastics, active techniques using baby heaters and kangaroo method care (Vilinsky & Sheridan, 2014). Nursing interventions are needed to overcome hypothermia in premature babies, especially during the birth process. In addition, of course, it is carried out continuously to prevent hypothermia in infants. One of the interventions that can be done is the use of skin wrap. Skin wrap literally means enveloping / wrapping the skin, there are two types of skin wrap that can be used, plastic can directly wrap the baby's body (vynil isolation bag / plastic bag) or envelop the baby (polyethylene plastic) (Smith & Usher, 2013).

The use of polyethylene plastic in LBW who experience hypothermia will reduce heat loss due to evaporation and possibly because radiation cannot pass through the plastic barrier so that it can increase the baby's body temperature. Plastic bags wrapped around the baby will become airtight so that it will prevent heat loss both evaporation, radiation, conduction, and convection so that it will produce heat and increase the temperature (H. Pranoto & Windayanti, 2018). Plastic reduces evaporation in infants by providing epidermal protection so that the body area exposed to outside air is reduced. This effectively reduces the body heat release of infants where the type of plastic used is polyethylene.

CONCLUSION

In this study it can be concluded that there is an effect of using polyethylene plastic bags on the increase and stability of body temperature in low birth weight babies (LBW) in the NICU room of SLG Kediri Hospital.

Hospitals can improve service quality by using complementary therapy using polyethylene plastic bags in LBW patients to increase and stabilize the baby's body temperature. And can provide education for families of patients with LBW in terms of home care by using polyethylene plastic bags to increase and stabilize the baby's body temperature.

REFERENCES

D, Farida (2017). "Pemberian Metode Kangaro Mother Care Terhadap Kestabilan Suhu Tubuh pada BBLR di Ruang Anyelir Rumah Sakit Umum R.A Kartini Jepara". http://jurnal.akperkridahusada.ac.id.

Desi. (2016). Pengaruh Penggunaan Kantong Plastik Terhadap Hipotermi dan Hipoglikemi pada Bayi Berat Lahir Rendah RSUP Dr. Kariadi. Semarang : Universitas Diponegoro Semarang.

Hirawati, Heni (2018). Efektifitas Metode Kantong Plastik Dalam Pencegahan Hipotermi Pada BBLR Di Kabupaten Semarang. Indonesian Journal of Midwivery (IJM) Vol 1: No 1 (2018) ISSN 2615-5095 (online).

Maryunani, A. (2013). Buku Saku Asuhan Bayi Dengan Berat Badan Lahir Rendah (T. Ismail, Ed.). Jakarta Timur: CV. Trans Info Media. Leadford, A. et al. 2015. Plastic Bags for Prevention of Hypothermia in Preterm and Low Birth Weight Infants.Pediatrics 132.1 (2013): e128–e134. PMC.Web.

Notoatmodjo, S (2012). Metodologi Penelitian Kesehatan. Jakarta : Rineka Cipta. Kosim, M. Sholeh, dkk (2005). Buku Panduan Manajemen Masalah Bayi Baru Lahir Untuk Dokter, Perawat, Bidan di Rumah sakit Rujukan Dasar. IDAI. MNHJHPEGO : Indonesia.

Novitasari, A., Hutami, M. S., & Pristya, T. Y. R. (2020). Pencegahan dan Pengendalian BBLR Di Indonesia: Systematic Review. Pencegahan Dan Pengendalian-Bblr-Di-Indonesia,175–182. http://doi.wiley.com/10.1002/14651858.CD013574.

Parti, Malik, S., & Nurhayati. (2020). Pengaruh Perawatan Metode Kanguru (PMK) terhadap Pencegahan Hipotermi pada Bayi Baru Lahir. Jurnal Bidan Cerdas, 2(2), 66–71. https://doi.org/10.33860/jbc.v2i2.56.

Riyanto S, Hatmawan A.A. (2020). Metode Riset Penelitian Kuantitatif Penelitian Di Bidang Manajemen, Teknik, Pendidikan Dan Eksperimen.

Sugiarti, (2015). Efektivitas Pembungkus Plastik Polrthylena Terhadap Perubahan Tanda-Tanda Vital Pada BBLR Di Ruang NICU Instalasi Gawat Darurat RSUD DR. Soetomo Surabaya. Surabaya : Perpustakaan Universitas Airlangga.

Sulastri, Anggraeni S (2018). Hubungan Ketuban Pecah Dini dan Usia Ibu dengan Kejadian Berat Badan Lahir Rendah di Rumah Sakit Raden Mattaher Provinsi Jambi. Midwifery Heal J.