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Effect of Developmental Care to Decrease Stress Hospitalization in Low Birth Weight Baby in NICU

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ABSTRACT

Stress hospitalization is often experienced by low birth weight (LBW) infants who are experiencing nurses in the hospital. Developmental care is one developmental care developed in order to minimize the impact of hospitalization. This study aims to determine the effect of developmental care on hospitalization stress reduction among LBW infants in NICU Dr. Moh Soewandhi Hospital. Pre-experimental Design One Group Pre-Post Test Design was used. 30 respondents obtained by using Simple Random Sampling technique. The independent variable was development care and the dependent variable was stress hospitalization. Developmental care procedure checklist and the behavior sheet of LBW infant instrument were used. The data was analyzed using Wilcoxon Signed Rank Test with significance level $\alpha = 0.05$. The results showed that almost half (46.7%) of respondents had moderate stress before Development Care was done, and most of them (73.3%) did not experience stress after Development Care. The Wilcoxon Signed Rank Test analysis showed that $p = 0,000$ at significance level $\alpha = 0.05$. It means that there is influence of developmental care to decrease stress of hospitalization on LBW Infant in NICU Dr Moh Soewandhi Hospital. In sum, development Care can reduce hospitalization stress in LBW. Therefore, it is suggested that the whole family to do Development Care on LBW who experience stress hospitalization.

Introduction

Babies who are born with low birth weight and get hospitalized often experience health problems, especially infections, stress hospitalization and disruption in growth and development. Environmental care and medical procedures during treatment contribute to developmental disorders (Bobak & Lowdermilk, 2010). Infant care takes a long time from several weeks to several months. As a result of hospitalization in infants, infants often experience impacts such as disruption of trust formation process, decreased sense of control and pain (Bobak & Lowdermilk, 2010).

State of The World's Mother (2010) suggests that 27% of newborn deaths are caused by LBW (WHO, 2011). In Indonesia the national proportion of LBW incidence reached 11.5% (Riskesdas, 2010). The number of LBW cases in East Java was recorded at 3.32% in 2010. Based on preliminary study, the incidence of LBW in Dr Moh Soewandhi Surabaya Hospital in 2010 was 137 per 1041 live births, in 2011 as many as 788 per 5007 live births, 2012 483 per 2695 live births and 2013 137 per 515 live births.

LBW infants often experience some problems in the immediate postnatal period as a result of immature organ characteristics. These characteristics include lack of surfactant and the least amount of alveoli that causes difficulty breathing. Lack of smooth muscle of blood vessels and low blood oxygen levels result in central nervous trauma. Delayed ducts arteries closure and inability to regulate the stimulus that cause the baby tends to experience stress. This situation becomes worse when birth weight is lower (Bobak, Lowdermilk & Jensen, 2010).

The stress experienced by LBW infants who are being treated with environmental conditions and activities can be seen from the baby's behavior. The behavior of stress manifestations on baby are physiological changes, attention and motor activity (Wilson, 2008). The behavior of LBW infants in response to excessive stimuli such as those from the noise of the treatment room, the conversation and the various treatments and treatments can be observed from various changes in body condition. Changes in this body condition such as hypoxemia, apnea, the increase in stress hormones, pain and discomfort (Fanaroff, 2009).

Various efforts have been developed in order to minimize the negative impact of hospitalization such as developmental care. Developmental Care is a treat-

ment performed on infants in particular to promote the growth and development of hospitalized infants (Altimier, 2011).

Environmental management in the developmental care includes providing incubator cover to minimize lighting, nesting to accommodate excessive movement and give the baby a comfortable place, flexion position arrangements to maintain the normality of the torso and support self-regulation. In addition, other forms of interventions that can be undertaken in developmental care are minimization of opening and closing of incubators for unnecessary procedures, procurement of quiet hours, facilitation of parent-child bonding and treatment of skin to skin contact methods.

Method

Pre-experimental Design One Group Pre-Post Test Design was used. Research subject groups were observed before and after intervention. The sample in this research was partially LBW Infant in NICU Dr Soewandhi Hospital in Surabaya. Simple random sampling was used to select the respondent. Independent variable in this research was developmental care and dependent variable was stress hospitalization variable. The research instruments were standard operational procedure of developmental care and LBW baby behavior sheet. The data were analyzed with Wilcoxon Signed Rank Test with significance level was 0.05.

Table 1 Characteristics of respondents

Characteristics of respondent		f	%
Gender	Boy	13	43,3
	Girl	17	56,7
Birth Weight (gr)	1500-2500	26	86,7%
	1000-1500	4	13,3%
	< 1000	0	0%
The level of stress hospitalization (pre-test)	No Stress hospitalization (Normal)	5	16,7
	Low Stress Level	9	30
	Moderate Stress Level	14	46,7
	High Stress Level	2	6,7
The level of stress hospitalization (post-test)	No Stress hospitalization (Normal)	22	73,3
	Low Stress Level	8	26,7
	Moderate Stress Level	0	0
	High Stress Level	0	0

Results and Discussion

Based on table 1 it was found that from 30 respondents, most (56.7%) of respondents were female, almost 86,7% had body weight 1500-2500 gram, almost half (46,7%) had moderate hospitalization stress before treatment, and half over (73.3%) did not experience hospitalization stress after treatment. Based on Wilcoxon Sign Rank Test statistic test on the difference of stress level of hospitalization before and after getting developmental care intervention in LBW Infant in NICU Room, Dr. Moh Soewandhi Surabaya Hospital got $\rho = 0,000$, so $\rho < \alpha = 0,05$. Then H_0 is rejected, it means there is difference between stress level of hospitalization before and after get developmental care intervention in LBW Infant in NICU Room of Dr Moh Soewandhi Hospital Surabaya.

Based on the result of statistical test on the difference of stress hospitalization level before and after received developmental care intervention in NICU Room Dr. Moh Soewandhi Hospital Surabaya showed that there is an influence of developmental care on the reduction of hospitalization stress in LBW in NICU Room Dr Moh Soewandhi Hospital Surabaya.

Hospitalization is a process for a planned or emergency reason, requiring the child to stay in the hospital, undergoing therapy and treatment until being discharged back home. According to Potter & Perry, (2009) hospitalization is a client's need to be treated due to changes or physical, psychological, social and environmental adaptations. The disruption is due to the immaturity of the organ system in LBW infants, resulting in high risk babies to experience obstacles in subsequent growth and development and even the high risk of death. Obstacles experienced can be worse if birth weight is lower and born prematurely. These barriers include slow growth and slow height, fine motor skills and poor concentration of abilities, difficulty in abstract abilities such as mathematics, and can experience obstacles in performing multiple tasks simultaneously. Other high-risk infants with low birth weight include attention deficit, anxiety, depressive symptoms, behavioral disorders, language, and visual-motor integration.

Hospitalization is an effort to handle the problem. But the process of hospitalization was not an easy thing. Hospitalization is a stressful experience, primarily because of a break with the normal environment where others mean, limited coping behavior

selection, and changes in health status. According to Wong (2009) when the act of hospitalization, feelings that often appear in children: anxiety, anger, sadness, fear and guilt Causes of stress in children influenced by many factors. In addition to the attendant factors (nurses, doctors, and other health personnel), new environments, parenting factors or family accompaniments during treatment are also very important.

Developmental care is developmental development that facilitates the development of the infant through the management of the care environment and behavioral observation so that the baby gets adequate environmental stimulus. Action developmental care, including Positioning, Lighting, Sound, Kangaroo Mother Care, Clustered Care, Parental Involvement. Positioning. Through the action of Developmental care is expected to stress levels of hospitalization in LBW can be resolved. Based on the results of research has been proved that the stress level of hospitalization before and after the developmental care action on LBW has decreased significantly. It is also proven through Wilcoxon Sign Rank Test that development care act is very influential on care to decrease stress of hospitalization in LBW in NICU Room Dr. Moh Soewandhi Hospital Surabaya. This means that the action of development care is an action that needs to be done to overcome the stress of hospitalization in LBW. Based on the above data before the action of developmental care stress is being the most, this is probably due to procedures that have not been executed properly and properly or interventions that have not been done in accordance with SOP at the time of infants LBW treated or while getting treatment NICU room. This may also be due to the management of a less-careful environment such as a noisy environment, officers talking loudly near babies, reopening incubators repeatedly, poor family support, lack of skin contact between mother and baby, giving infants a less right position, improper lighting arrangement and possibly due to lack of family involvement in infant care during outpatient care in the NICU room. Before and after developmental care there is a significant difference, this is probably due to the actions or interventions that have been done according to SOP. This means that the action of development care is an action that needs to be done to overcome the stress of hospitalization in BW.

Based on the research results the the incident of

moderate stress hospitalization before developmental care treatment is being the most. This is probably due to procedures that have not been executed properly and correctly or interventions that have not been done in accordance with SOP at the time of LBW infants treated or while getting care NICU room. This may also be due to the management of a less-careful environment such as a noisy environment, officers talking loudly near babies, reopening incubators repeatedly, poor family support, lack of skin contact between mother and baby, giving infants a less right position, improper lighting arrangement and possibly due to lack of family involvement in infant care while in care in NICU spaces. Before and after developmental care there is a significant difference, this is probably due to the actions or interventions that have been done according to SOP. This means that there has been family involvement in the care of infants during infancy, the skin contact has been done between mother and baby, the officer has done all the actions at one time (giving medicine, milk, change diapers at a time) officers have minimized the sound around babies, the officer has positioned the baby with flexi position and installation of nesting (bird's nest) around the baby. The officer has set the lamp properly, the cloth cover on the incubator has also been given.

From the results of the study also still showed the LBW infant with mild hospitalization stress even though hope after developmental care baby of LBW not stress hospitalization, this is possible because distance from before and after measurement is 7 day, meaning intervention given only for 7 days, so the possibility of impact changes shown baby LBW also not yet seen maximally (Positioning, sound, lighting, clustered care, Kangaroo mother care, and parental involvement). This means that in the provision of sleeping positions that are less fit, noisy sounds still exist, unregulated lighting, lack of family support, and the opportunity of skin contact between the mother and the baby is less. In the results of the study also obtained a significant result, where the baby who has not done the same action that has been done seem drastic change, from the stress is a mild stress to not stress, it is possible also because this research is assisted by numerator observations, so the results of observations may lack detail, one of which is how to rate the lips folded inward.

Conclusion

In sum, development Care can reduce hospitalization stress in LBW. Therefore, it is suggested that the whole family to do Development Care on LBW who experience stress hospitalization.

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