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PAIN MANAGEMENT RESPONSE USING BREASTFEEDING METHOD AND ICE COMPRESSION AT THE TIME OF IMMUNIZATION

Vera Iriani Abdullah[1*]
[1] Midwifery Departement, Politeknik Kesehatan Kemenkes Sorong. Sorong, West Papua, Indonesia
Corresponding author: verabdullah1977@gmail.com

ABSTRACT

Background: According to WHO (2015), there are 18.7 million babies worldwide who do not get DPT immunization. Pain is a problem that must be overcome, because the comfort that the baby receives is very important for the development of trust, which is one of the developmental tasks at the age of the baby in overcoming discomfort during immunization so as not to cause trauma and in order to be able to receive immunization without any behavior distress. The purpose of this study was to determine the differences in breastfeeding techniques and ice packs on the pain response in infants during DPT immunization.
Methods: Design used a quasi-experimental research design using Post-test Only One Group Design. the first intervention group was given breastfeeding technique treatment and the second intervention group was given ice pack treatment, each technique is performed with a duration of 5 minutes. The number of samples of 20 infants who received DPT immunization. Analysis of the data using the Mann-Whitney statistical test.
Results: there was no significant difference between the breastfeeding technique and ice packs on the baby's pain response with a p-value of 0.063 ± 0.05.
Conclusion: Breastfeeding and ice pack techniques have the same effectiveness in terms of reducing pain response in infants during DPT vaccination.

Keywords: Baby, immunization, vaccine

INTRODUCTION

Immunization is one way to stimulate the formation of antibodies from the immune system in the body by giving vaccines to prevent certain diseases (Roth Ga *et al*, 2022). Immunization has been proven to reduce the death rate in children due to infections such as measles, diphtheria, pertussis, tetanus, polio, hepatitis B, and tuberculosis (Pan *et al*, 2021). Immunization is also one of the government programs that is implemented to achieve the goals of the Sustainable Development Goals (SDGs) and immunization is one of the indicators to see the coverage of baby and toddler services in a certain area (Estiyanti, 2018).

According to the World Health Organization (WHO), there are 18.7 million babies worldwide who do not receive DPT3 immunization and more than 60% of children are spread in the Democratic Republic of Congo, Ethiopia, India, Indonesia, Iraq, Nigeria, Pakistan, Philippines, Uganda and South Africa (WHO, 2010). In Indonesia, based on data from the National Medium-Term Development Plan-Health (RPJMN-Kesehatan) on national immunization policies, it shows that in 2015-2019, the coverage of Complete Basic Immunization (IDL) reached 93% in babies aged 0-11 months, with details in 2015 is expected to reach 91%, 2016 is 91.5%, 2017 is 92%, 2018 is 92.5% and 2019 reaches 93% (Lukito, 2019).

Babies who receive vaccinations will experience pain when injected. The pain felt has not been a special concern for health workers, yet pain during the procedure that does not receive pain management will cause distress behaviors such as, longer crying

duration that is difficult to calm down, thrashing, also showing kicking or pulling legs by jerking, and restlessness during the procedure (Devi, 2018). The most common effects that often occur in DPT vaccination injections are fever, redness in the injection area, pain, and usually swelling at the injection site. Meanwhile, the most common Post-Immunization Incident (KIPI) in children is anaphylactic reactions, which are severe allergic reactions (Aminina, 2014).

Pain is a problem that must be addressed, because the comfort received by the baby is very important for the development of trust, which is one of the developmental tasks at the baby's age in dealing with discomfort during immunization so as not to cause trauma and to be able to accept immunization without distress behavior (Devi, 2018). In addition, pain that is not immediately handled can have an impact on a child's life, disrupting a child's activities, difficulty sleeping, and difficulty interacting because the child is focused on the pain felt (Fatriansari, 2020) . Good or adequate sleep quality for babies will have a positive impact on babies, causing babies to be healthier (Abdullah Vi et al, 2022).

Pain management can be done with non-pharmacological methods such as compresses and breastfeeding techniques (Tiansa et al, 2020). These methods are much safer because they have minimal side effects and can reduce pain during the baby's vaccination. Breastfeeding is a physiological process that provides optimal nutrition to babies. Nothing is more valuable in a child's life than receiving high-quality nutrition from the start of their life and it also helps to stimulate early motor development (Global Breastfeeding Scorecard, 2022). Breast milk is the ideal nutrition for optimal health, growth, and development of babies. It is a white liquid produced by the mother's mammary glands through breastfeeding (Lyons et al, 2020).

Breast milk is produced in the mammary glands, then it enters the storage ducts near the nipple through the milk ducts, and it remains there until the baby sucks it through the nipple (Lyons Ke et al, 2020). This is caused by the provision of breast milk which can increase the oxytocin hormone in the baby's body, which is the hormone related to calmness and pain reduction when the baby is given an immunization injection (Devi, 2018). Ice compression technique can be done by using small size ice cubes which aim to numb the pain and stop the bleeding. By giving ice compression can reduce pain and discomfort due to needle punctures because it functions as an effective, affordable, easily accepted and non-infectious local anesthesia (Estiyanti, 2018). Based on the magnitude of the impact and the lack of pain management during immunization, this prompted researchers to conduct this study which aims to analyze the difference in effectiveness between Breastfeeding Method and Ice Compression.

METHODS

The type of research uses a *quasi-experimental* research design to assess the difference between breastfeeding technique and ice compression on the pain response in babies during DPT vaccination, with a *post-test two group* design approach. The sample in this research is **babies** aged 2-11 months who received DPT vaccination at Malawei Health Center in Sorong City, totaling 20 respondents and meeting the inclusion criteria. Respondents were divided into two groups, namely the Ice Compression group and the breastfeeding group.

The Ice Compression group intervened by giving ice packs using an ice pack on the baby's thigh before injecting the DPT load with a duration of ± 1 minute. Whereas in the breastfeeding group the babies gave breast milk before injecting the eggs with a duration of ± 3 - 5 minutes. The sampling technique used is purposive sampling, which is a technique for

determining samples with certain considerations (Sugiyono, 2015).

The instrument used in this research is the FLACC (Face, Leg, Activity, Cry, Consolability) questionnaire sheet as a measuring tool to assess pain response in babies injected with DPT vaccination. the FLACC questionnaire is a standard questionnaire so it is not tested for validity and reliabilityThe data analysis used is the Mann Whitney test. This research has obtained ethical approval from the Ethical Commission of Poltekkes Kemenkes Sorong with the number DM.03.05/6/056/2021.

RESULTS AND DISCUSSION

Univariate Analysis

1. Respondent Characteristics

Based on table 1, it shows that the frequency distribution of the characteristics of the breastfeeding technique group with 10 respondents and the ice compress group with 10.

Table 1. Respondent Characteristics

Variable	*Breastfeeding*		Ice compression	
	f	%	f	%
Age (Month)				
2	1	10	2	20
3	2	20	2	20
4	4	40	2	20,0
5	1	10	2	20,0
6	2	20	2	20,0
Total	10	100	10	100
Gender				
Boys	3	30,0	3	30,0
Girl	7	70,0	7	70,0
Total	10	100	10	100
DPT Immunization				
DPT 1	2	20,0	3	30,0
DPT 2	4	40,0	5	50,0
DPT 3	4	40,0	2	20,0
Total	10	100	10	100

Respondents at Puskesmas Malawei are as follows:

a. Breastfeeding Technique Group

Age, shows that respondents with an age of 4 months are 4 respondents (40.0%) more than respondents with an age of 2 and 5 months, which each have 1 respondent (10.0%).

Gender, shows that respondent with female gender are 7 respondents (70.0%) more than respondents with male gender which are only 3 respondents (30.0%).

DPT Immunization, shows that respondents who received DPT 2 and DPT 3 vaccinations each have 4 respondents (40.0%) more than respondents who received DPT 1 vaccination with 2 respondents (20.0%).

b. Ice Compression Group

Age, shows that all respondents from 2 months to 6 months of age have the same number of values, namely each gets 2 respondents (20.0%).

Gender, shows that there are 7 female respondents (70.0%) more than male respondents who only have 3 respondents (30.0%).

DPT Immunization, Showing that the number of respondents who received DPT 2 vaccination is 5 respondents (50.0%) more than the number of respondents who received DPT 3 vaccination which is 2 respondents (20.0%).

2. Pain Level

Table 2. Distribution of Pain Response Level After Intervention

Pain Response Rate	*Breastfeeding*		Ice Compression	
	f	%	f	%
No Pain	0	0	0	0
Mild Pain	7	70	3	30
Moderate Pain	3	30	5	50
Severe Pain	0	0	2	20
Total	**10**	**100**	**10**	**100**

Based on Table 2, it can be seen that the pain response level of the respondents after being given the breastfeeding technique treatment, most of the respondents experienced mild pain as much as 7 respondents (70%), and 3 respondents (30%) experienced moderate pain. Meanwhile, the respondents who were given the ice compress technique mostly experienced moderate pain as many as 5 respondents (50%), 3 respondents (30%) experienced mild pain, and 2 respondents (20%) experienced severe pain.

Bivariate Analysis

Table 3. Statistical Test Result of the Difference between Breastfeeding and Ice Compress Technique

Variable	Mean Difference	*p-Value*
Breastfeeding	8,10	0,063
Ice Compress Technique	12,90	
*Mann-Whitney test	$p \geq 0,05$	
*Significant		

Based on Table 3, the results of data analysis after the Breastfeeding Technique and Ice Compress Technique were applied to the pain response in babies during DPT vaccination using the Mann Whitney test obtained a p-value of 0.063 ≥ 0.05, which means there is no difference between the breastfeeding technique and ice compress technique against the pain response in babies during DPT vaccination.

Discussion

The age range of the respondents in this research is 2-6 months. The majority of the respondents in this study were 4 months old as many as 6 people (30%) compared to 2 and 5 months old, each of which were 3 people (15%). According to Arief D. Kurniawan (2013) in Prasetyo (2010) and Ismanto (2010), age is an important variable in affecting pain in individuals. Young children have difficulty interpreting pain and procedures that may cause pain to arise (Prasetya, 2010).

Young children also cannot express words and have difficulty expressing verbally, the level of development will be in line with increasing age so that with increasing age tolerance to pain increases (Khoiriyah, 2016). At the time of immunization injections, it shows that there is a relationship between age and pain response during injections. Breastfeeding intervention can effectively reduce pain during immunization injections for babies of various ages up to 12 months (Prasetya, 2010).

The results of this study show that female respondents are more than male respondents, with 14 female respondents (70%), and 6 male respondents (30%). Tolerance to pain has been a long-term research subject involving both men and women, but tolerance to pain can be influenced by some biochemical factors and is unique to each individual without showing gender (Potter, 2006).

Most of the types of DPT vaccinations in this research are DPT 2 vaccinations which amounted to 9 people (45%) while the least is only 5 people (25%). The type of vaccination is affected by various factors such as vaccine volume, needle diameter size and injection site, each type of vaccination has different results obtained by each baby. This is supported by research results that show that the difference in baby's response is not determined by the difference in the type of vaccination received by the baby (Khoiriyah, 2016).

Based on table 2, it shows that the level of pain response in babies during vaccination as measured by using FLACC pain scale, which is respondents who were given breastfeeding technique treatment experienced mild pain response with a total of 7 respondents (70%), while respondents who were given ice compress treatment experienced moderate pain response with a total of 5 respondents (50%).

From the Mann Whitney statistical test, the p-value obtained was 0.063 ≥ 0.005, which means that there is no difference between breastfeeding techniques and ice compress against pain response in babies when they are given DPT vaccinations. Breastfeeding is a type of non-pharmacological intervention that has been proven to minimize pain and have analgesic effects when procedures are performed on babies (Alfina et al, 2021).

This is due to the fact that breastfeeding can increase the hormone oxytocin in the baby's body, which is a hormone related to calmness and pain reduction when the baby is given an injection vaccination (Devi, 2018).

According to Estiyanti, 2017, the ice compression technique is a body temperature maintenance action performed using small ice cubes with the purpose of numbing pain and

stopping bleeding. Ice compression can also be defined as the action of attaching or wrapping a collection of ice on the surface of the skin with a cloth boundary so as not to cause excessive coldness (Choirunnisa et al, 2020).

By providing ice compression, it can reduce pain and discomfort due to needle punctures because it functions as an effective, affordable, easily accepted, and non-infective local anesthetic. Although there is no significant difference between breastfeeding techniques and ice compression in statistical tests, if seen from the scores obtained using the FLACC pain scale in the breastfeeding technique group is lower compared to the ice compression group.

CONCLUSION

There is no difference between breastfeeding and ice compress techniques in terms of pain response in babies during DPT vaccination.

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CONFLICT OF INTEREST

There is no conflict of interest in this research.

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