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The Effect of Topical Breast Milk on Umbilical Cord Detachment in Babies

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Abstract

Breast milk is an unmatched liquid created by Allah SWT to meet the nutritional needs of the baby and protect it in the fight against possible attacks of disease. The first time it came out was colostrum. Colostrum is high in protein, minerals, vitamin A (Prevents various infections and prevents eye disease), white blood cells (protection against infection) and antibodies (protects against infections and allergies). The main proteins in colostrum are immunoglobulins (Ig G, Ig A, and Ig M), which are used as antibody substances to prevent and neutralize bekteri, viruses, fungi and parasites. The purpose of this study was to find out the topical effect of breast milk on the release of baby umbilical cords in BPM Lismarini and RB Citra in Palembang City. This research method is an experimental research design that has a treatment with the posttest only control group design approach, namely, the baby umbilical cord group that is given topical breast milk after drying in a pack with sterile gauze and baby umbilical cord that is only given sterile gauze or does not give treatment. The study sample was newborns at BPM Lismarini and RB Citra in Palembang City. The sample size in the experimental group was 15 people and the control group was 15. Sample number in BPM Lismarini 30 respondents and RB Citra 30 respondents. It was found that in the topical breastfeeding group of 30 respondent's as many as 26 people (86.7%) faster (< 5 days) the baby's umbilical cord came off while in the sterile cassation group was obtained only 12 people (40%) out of 30 respondents. Topical influence of breast milk on the release of the baby's umbilical cord in BPM Lismarini and RB Citra in Palembang City, showed that there was an average difference in the length of umbilical cord release in newborns between topical breastfeeding and sterile gauze (p value = 0.000), meaning topical breast milk has a faster effect on cord release in newborns compared to the use of sterile gauze.

Keywords
topical breast milk; Cord release; babies

I. Introduction

The umbilical cord is a lifeline for the fetus while in the womb. It is said to be the channel of life because this channel is what during pregnancy supplies nutrients and oxygen to the fetus. But once the baby is born, this channel is no longer needed so it must be cut and tied or clamped. The umbilical cord should be left loose on its own, do not hold or even pull it. Cord infection is caused by bacteria entering the body through the umbilical cord in the baby. Bacteria can enter as a result of cord cutting with unsterilized instruments, skin-to-skin contact, and improper hand washing techniques, poor umbilical cord care and cross-infection.

is caused by bacteria entering the body through the umbilical cord in the baby. Bacteria can enter as a result of cord cutting with unsterilized instruments, skin-to-skin contact, improper hand washing techniques, poor umbilical cord care and cross-infection.

Breast milk is a non-matched liquid created by God to meet the nutritional needs of the baby and protect it in the fight against possible disease attacks. The first time it came out was colostrum. Colostrum is high in protein, minerals, vitamin A (Prevents various infections and prevents eye disease), white blood cells (protection against infection) and antibodies (protects against infections and allergies). The main proteins in colostrum are immunoglobulins (Ig G, Ig A, and Ig M), which are used as antibody substances to prevent and neutralize bekteri, viruses, fungi and parasites. So that the content of breast milk is almost unparalleled. (Maryunani, 2015).

The Sustainable Development Goals (SDGS) target by 2030 is to end and prevent infant and toddler deaths. With the rest of the country trying to reduce neonatal mortality to at least 12 per 1,000 KH and toddler mortality rate of 25 per 1,000 KH.

Models of topical treatment of breast milk on the umbilical cord can reduce the incidence of umbilical cord infection and speed up the time of release of the umbilical cord in infants. Incidence of cord infection in the group that received treatment with open dry method as many as 4 infants (26.7%). In the group with topical treatment of breast milk, 1 baby (6.7%) had omphalitis (cord infection). The results showed there was still 1 baby who had omphalitis in the group of infants who received cord treatment with topical breast milk. However, in the group of infants who received cord treatment with open dry methods, omphalitis was found in 4 infants. (Kasiati, 2013).

Cord infection can actually be prevented in various cases (Capurio, 2010). So it's important to identify the best umbilical cord care techniques to reduce infant mortality (AKB). It is clear that the release of the umbilical cord is faster in most babies who use breast milk than in dry techniques. As much as 80% of the breast milk group, the umbilical cord is detached on days 4-5 and only 20% is detached on days 5-6. On the other hand 3% of the group of babies on dry techniques whose umbilical cord is detached on days 4-5, mostly 75% on day 7 and so on (Allam dkk, 2015).

Tropical countries need to be aware of the use of alcohol that was once popular and proven effective for cleaning the umbilical cord, because actually alcohol will be volatile in hot areas and thus its effectiveness will decrease. Same with antiseptic powder. So the most effective way is to keep the umbilical cord open, dry and just cleaned daily with clean water. Midwives need to provide this information to each mother so that there is no increase in moisture on the baby's skin. (Marmi dan Kukuh, 2015).

Based on data from the World Health Organization (WHO) in 2015, neonatal deaths caused by tetanus neonatorum in Southeast Asian states amounted to 581 infants. (WHO, 2015). Meanwhile, cases of tetanus neonatorum in Indonesia in 2014 reported 84 babies from 15 provinces and 54 babies died. This case of tetanus neonatorum occurs due to several factors including 15 infants due to risk factors of cord care with alcohol or iodine, 32 babies with traditional care, 26 babies by other means of care, and the unknown way of cord care as many as 7 babies. (Kementrian Kesehatan Republik Indonesia, 2014).

Data obtained for Palembang City, based on the child program report, the number of infant deaths in 2014 amounted to 52 infant deaths from 29,235 live births. (Profil Seksi Pelayanan Kesehatan Dasar, 2015). The cause of death include neonate infections.

The results of this study can be applied in the service of obstetric care, especially about the topical influence of breast milk on the release of umbilical cords in infants in BPM Lismarini and Maternity Home Citra Kota Palembang.

II. Review of Literatures

2.1 Basic Baby Concept

According to Rukiyah, a normal newborn is a baby born in the back of the head through the vagina without wearing tools, at a gestational age of even 37 weeks to 42 weeks, with a weight of 2500 - 4000 grams, apgar value > 7 without congenital defects. (Rivanica, R dan Miming Oxyandi, 2016).

Neonatal period is the period from birth to 4 weeks (28 days) after birth. Neonates are babies aged 0 (newborn) up to 28 days of age. Early neonates are babies aged 0-7 days. Elderly neonates are babies aged 8-28 days. (Wafi Nur Muslihatun, 2010).

Infants are individuals aged 0-12 months which is characterized by rapid growth and development accompanied by changes in nutritional needs. (Wong, 2003). Darnifayanti (2021) state that the incidence of RDS is also strongly influenced by gestational age and body weight.

According to Patricia W. Ladewig, babies also need treatment that can increase their chances of successful transition. The purpose of obstetric care is to provide comprehensive care to the newborn while he is in the care room, to teach parents how to care for their baby, and to motivate the couple's efforts to become parents, so that parents are confident and steady. (Marmi dan Kukuh, 2015, p.5). In the care of newborns it is necessary to pay attention to cord care.

2.2 Umbilical Cord Care in Newborns

Correct cord treatment and the release of the umbilical cord within the first week significantly reduce the incidence of infection in neonates. The most important thing in cord care is to keep the umbilical cord dry and clean. Wash your hands with soap and clean water before caring for the umbilical cord. Gently clean the skin around the umbilical cord with a wet cotton swab, then wrap it loosely/ not too tightly with a clean/sterile gauze. Diapers or baby pants are tied under the umbilical cord, not covering the umbilical cord to avoid contact with feces and urine. Avoid using buttons, coins or coins to bandage press the umbilical cord. There are various types of umbilical cord treatments using antiseptics such as alcohol and povidone-iodine, dry umbilical cord treatment, open umbilical cord treatment and now there is umbilical cord treatment using topical breast milk.

Topical antiseptics and antimicrobials can be used to prevent the colonization of germs from the delivery room, but their use is not recommended for routine. Common antiseptics are alcohol and povidone-iodine. However, recent research proves that using povidone-iodine can cause side effects due to absorption by the skin and related to transient hypothyroidism. Alcohol is also no longer recommended for treating the umbilical cord as it can irritate the skin and inhibit the release of the umbilical cord. There are currently no clues regarding a good antiseptic and safe to use for cord treatment, as it is said it is best to keep the umbilical cord dry and clean. (Prawirohardjo, S, 2014, p.371). Giving advice to your mother and family is as follows:

a) Fold diapers under the umbilical cord
b) If the umbilical cord is dirty, clean (carefully) with DTT water and soap and dry it thoroughly immediately using a clean cloth.
c) Explain to the mother that she should seek help with an attendant or health facility, if the umbilical cord bleeds, becomes red, festers and/or smells.
d) If the base of the umbilical cord (baby's center) continues to bleed, red expands, or expels pus and/or blood, immediately refer the baby to a health facility. (Johariyah dan Irma W.N, 2012, p 174).

2.3 Loss of the Umbilical Cord

For a mother who has just given birth to a baby, many new things will be learned. One of them is cord care in newborns. The umbilical cord will play or loose generally within one week

of life, but in some cases it can be slower up to 10-14 days after the baby is born. The umbilical cord will dry by itself and detach from the baby's body. Parents should not force to remove the baby's umbilical cord because it will cause bleeding and the risk of infection.

2.4 Symptoms of Umbilical Cord Infection

Cord infections are commonly experienced by newborns, whose immune systems have not been fully formed. This infection is experienced within a few days after the birth of the baby. Symptoms of umbilical cord infection are not immediately apparent in the early days of the baby's life. But, if the baby's umbilical cord area looks reddish and releases pus within 3-5 days after birth, it is certain that this is an infection.

Research on omphalitis shows that babies born prematurely and babies with low birth weight have a greater risk of developing cord infections. This group of babies has a much lower immune system than normal babies, making it more susceptible to various types of infections after birth. As with some other types of infections, the main cause of omphalitis is exposure to bacteria, such as tetanus, strep, and staph bacteria. This exposure can occur when the doctor cuts the umbilical cord.

Babies who have a cord infection usually get a high fever and become very fussy, making it difficult to sleep well. Mothers can also have difficulty in breastfeeding because your child is difficult to soothe. Cord infection can be prevented by keeping the umbilical cord clean and dry.

2.5 Prevention of Infection in the Umbilical Cord

This effort is done by caring for the umbilical cord which means keeping the wound clean, not exposed to urine, baby feces or soil. It is forbidden to affix or apply herbs, kitchen ashes and so on to cord wounds, as it can cause infections and tetanus that can end in neonatal death.

There have been many clinical trials to compare the way of cord treatment so that there is no increase in infection, namely by leaving the umbilical cord wound open and only cleaning the wound with clean water.

Tropical countries need to be aware of the use of alcohol that was once popular and proven effective for cleaning the umbilical cord, because actually alcohol will be volatile in hot areas and thus its effectiveness will decrease. Same with antiseptic powder.

So the most effective way is to keep the umbilical cord open, dry and just cleaned daily with clean water. Midwives need to provide this information to each mother so that there is no increase in moisture on the baby's skin. (Marmi dan Kukuh,2015).

III. Research Methods

This research is an experimental research design that is directed research, not only to describe but has analyzed the relationship between variables. (Setiawan dan Sayono, 2011). Experiments are defined as experiments that have a treatment. Experiments with the posttest only control group design approach are experimental groups and control groups conducted based on not randomly selected. Then posttested both groups, followed by intervention in the experimental group. In the design of this study there are two groups, baby umbilical cord given topical breast milk after drying in a pack with sterile gauze and baby umbilical cord that is only given sterile gauze or does not give treatment. The conclusion of the results of this study can be by comparing the value of posttests in the form of topical breast milk against the release of baby umbilical cord in BPM Lismarini and RB Citra palembang city.

The study sample was newborns at BPM Lismarini and RB Citra in Palembang City. Each group was a group of newborns with topical breast milk on the baby's umbilical cord and a group that was given only sterile gauze. The sample size in the experimental group was 15

people and the control group was 15. For in BPM Lismarini and RB Citra The number of samples is the same. The sampling technique in this study is purposive sampling, where sampling is based on previously known criteria. The study was conducted at BPM Lismarini and RB Citra in Palembang City. The study was conducted in July - November.

IV. Results and Discussion

4.1 Results

This study is an experiment with the posttest only control group design approach, where the subjects of this study are newborns in BPM Lismarini and RB Citra in Palembang City consisting of 2 treatment groups, namely the group given topical breast milk and in the sterile gauze wrap and the group given sterile gauze. The number of samples in the study was each group of 30 samples in the experimental group and a control group of 30 samples in the control group. The results of the analysis are presented as follows:

a. Distribution of Maternal Age, Child Sex and Birth Weight in topical Breastfeeding and Kassa in Infants at BPM Lismarini and RB Citra

Characteristics of the study subjects consisted of the mother's age, child sex and birth weight in the Topical Breastfeeding and Kassa in Infants group in BPM Lismarini and RB Citra. The results of the analysis of maternal age obtained the average age of mothers in the topical breastfeeding group is 26 years with a minimum age of 19 years and a maximum age of 39 years while in the group of giving sterile kassa the average age of the mother is 29 years with a minimum age of 17 years and a maximum of 41 years. The results of the full analysis are presented in the table as follows:

Table 1. Distribution of Maternal Age in topical breastfeeding and sterile Kassa group in Infants in BPM Lismarini and RB citra in Palembang City

Treatment Group	n	Mother's Age $\bar{x} \pm SD$	Median	Minimum - Maksimum
Topical breast milk	30	26,78 ± 5,39	29	19 - 39
Kassa steril	30	29,56 ± 6,16	30	17 - 41

The results of the distribution analysis based on the sex of the child found that in the topical breastfeeding group more types of ana were born male by 46.7% compared to women while in the sterile case giving group most of the sexes of children born also male were 63.3%. The results of the full analysis are presented in the following table:

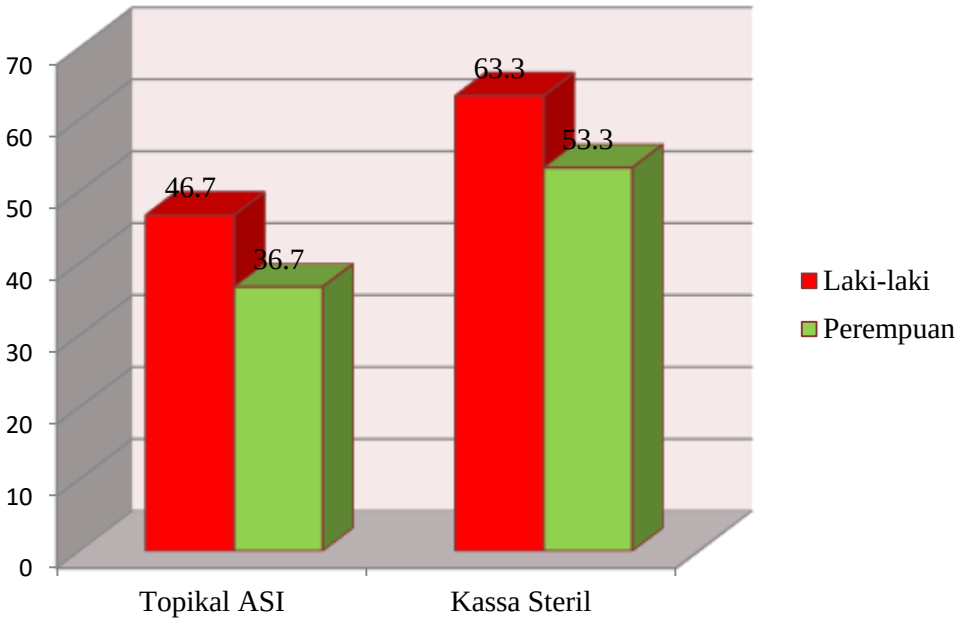

Figure 1. *Distribution of Child Sex in Topical Breastfeeding and Kassa groups in Infants in BPM Lismarini and BPM Soraya*

The results of the analysis of the child's birth weight were obtained in the topical breastfeeding group the average child's birth weight was 3010 grams with a birth weight of at least 2200 grams and a maximum birth weight of 4100 while in the sterile gauze group the average child's birth weight was 2990 grams with a birth weight of at least 2200 grams and a maximum birth weight of 4000. The results of the full analysis are presented in the table as follows:

Table 2. Distribution of Birth Weight in Topical Breastfeeding and Kassa Groups in Infants in BPM Lismarini and BPM Soraya

Kelompok Perlakuan	**n**	**Berat badan Lahir $\bar{x}$ ± SD**	**Median**	**Minimum - Maksimum**
Topikal ASI	30	3010 ± 443,61	2950	2200 - 4100
Kassa steril	30	2990 ± 465,61	3000	2200 - 4000

b. Frequency Distribution Based on Long Cord Release in Newborns in Topical Breastfeeding and Kassa group in Infants in BPM Lismarini and BPM Soraya

The results of the frequency distribution study based on the length of umbilical cord release in the newborn group Topical breastfeeding and gauze in infants were categorized based on the cut off point value obtained < 5 days, if slow (> 5 days) and fast (< 5 days). The study was conducted in two places: BPM Soraya and BPM Lismarini. The old deskritive analysis of umbilical cord release in newborns in BPM soraya obtained the release of umbilical cord in the fast category of breast milk droplets as much as 100% while in the administration of kassa which is 80%. The results of the analysis of the distribution of the frequency of cord release in BPM Soraya as follows:

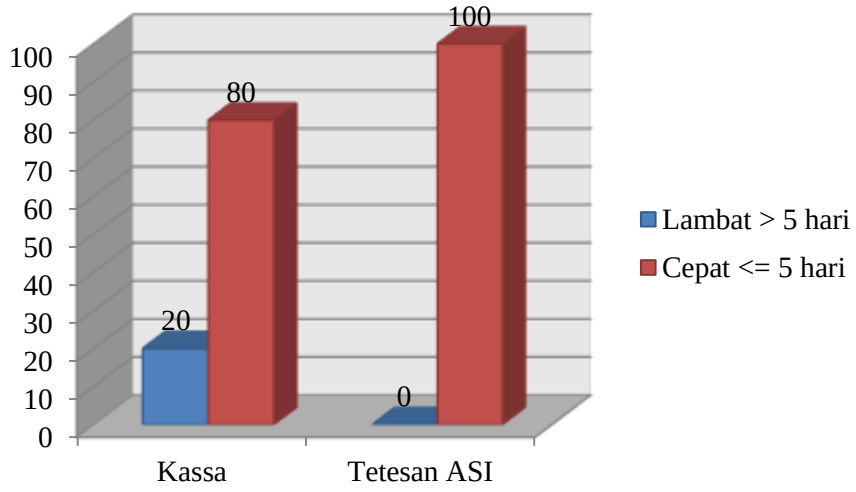

Figure 2. *Long Release of Umbilical Cord in Newborns at BPM Soraya*

While the old deskritive analysis of umbilical cord release in newborns in BPM Rismarini obtained a rapid category umbilical cord release at the feeding of breast milk droplets as much as 73.3% while in the administration of casssa which is 0%. The results of the analysis of the distribution of the frequency of cord release in BPM Soraya as follows:

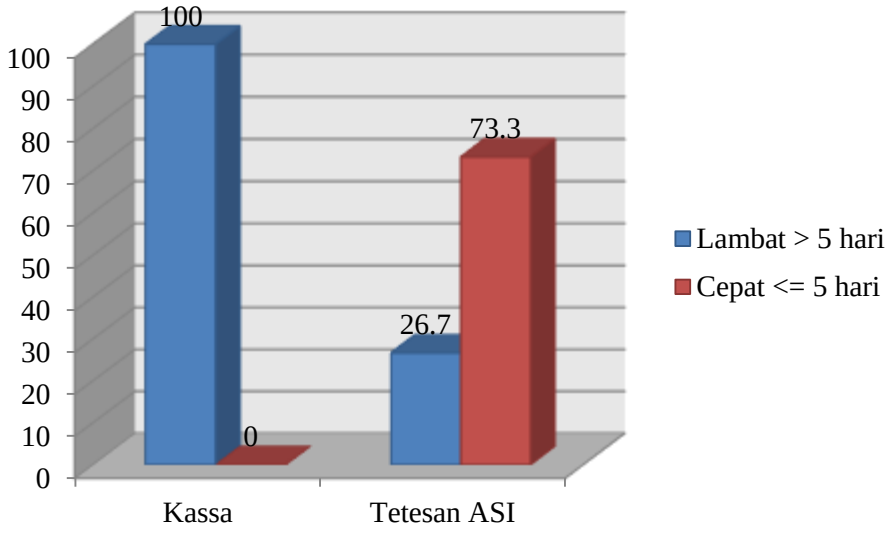

Figure 3. *Long Release of Umbilical Cords in Newborns at BPM Rismarini*

The results of the analysis were obtained in the topical breastfeeding group of 30 respondents as many as 26 people (86.7%) faster (< 5 days) the baby's umbilical cord came off while in the sterile cassation group was obtained only as many as 12 people (40%) out of 30 respondents. The results of the analysis are presented in the following table :

Table 3. Distribution Based on Long Cord Release in Newborns in Topical Breastfeeding and Kassa groups in Infants In BPM Lismarini and BPM Soraya Breast Milk

Baby's umbilical cord release time	Group		Total n (%)
	Topical ASI n (%)	Sterile Gauze n (%)	

Lambat (> 5 hari)	18 (60%)	4 (13,3%)	22 (36,7%)
Cepat (≤ 5 hari)	12 (40%)	26 (86,7%)	38 (63,3%)
Total	30 (100%)	30 (10%)	60 (100%)

Normality tests in this study were conducted to find out the distribution of umbilical cord release data in infants. The normality test uses the shapiro wilk test, if the data is distributed nomal (p value > α) and vice versa if the data is not distributed noral if (p value < α). The results of the analysis found that in the topical breastfeeding group showed the umbilical cord release data in infants was not normally distributed (p value = 0.001) while in the sterile case group also showed that the data was not normally distributed (p value = 0.000). The results of the full analysis are presented in the table as follows:

Table 4. Normality Test of The Length of Cord Release in topical Breastfeeding and Kassa in Infants in BPM Lismarini and BPM Soraya

Group	**n**	***Shapiro- Wilk***		
		Statistic	*df*	*p value*
Topical ASI	30	0,851	30	0,001
Sterile Gauze	30	0,772	30	0,000

c. Topical Effect of Breast Milk on the Release of Baby Umbilical Cords at BPM Lismarini and BPM Soraya in Palembang City

The results of an analysis of the topical influence of breast milk on the release of infant umbilical cord in BPM Lismarini and BPM Soraya in Palembang City, showed that the average length of umbilical cord release in infants in the topical group of breast milk was an average of 4.66 days faster than the sterile gauze group obtained an average of 5.76. Statistical test results using the Mann Whitney U test found that there was an average difference in the length of umbilical cord release in infants between topical breastfeeding and sterile gauze (p value = 0.000), meaning topical breast milk had a faster effect on cord release in newborns compared to sterile gauze. The results of the full analysis are presented in the following table:

Table 5. Topical Effect of Breast Milk on Baby Cord Release at BPM Lismarini and BPM Soraya in Palembang City

Treatment Group	**n**	**Umbilical Cord Release $\bar{x}$ ± SD**	***Median***	***Minimum - Maksimum***	***P value***
Topical ASI	30	4,66 ± 0,711	5	4 - 6	0,000
Sterile Gauze	30	5,76 ± 1,104	6	3 - 7	

4.2 Discussion

The results of descriptive analysis found that in the topical breastfeeding group of 30 respondents as many as 26 people (86.7%) faster (< 5 days) the baby's umbilical cord came off while in the sterile case delivery group was obtained only as many as 12 people (40%) out of 30 respondents. The topical effect of breast milk on the release of the baby's umbilical cord at BPM Lismarini and BPM Soraya in Palembang City, showed that there was an average difference in the length of umbilical cord release in newborns between topical breastfeeding and sterile gauze (p value = 0.000), meaning topical breast milk had a faster effect on cord

release in newborns compared to the use of sterile gauze.

According to Kasiati 2013, topical is a drug that is a local way of administration, such as eye drops, eye ointments, ear drops, and others. Drug administration on the skin is a way to give drugs to the skin by applying to maintain hydration, protect the surface of the skin, reduce skin irritation, or overcome infections. Giving drugs to the ear how to give ear medicine with ear drops or ointments.

Breast milk is proven to be safe, effective and efficiently used as a topical in the care of the baby's umbilical cord. Models of topical treatments of breast milk on the umbilical cord can decrease the incidence of omphalitis as well as speed up the release time of the umbilical cord in infants. The occurrence of omphalitis can be avoided if umbilical cord treatment uses topical breast milk, accompanied by the correct treatment methods such as doing hand washing before and after caring for the baby both by health workers and parents or babysitter, folding diapers under the umbilical cord, caring for the umbilical cord when wet with sweat, urinating and not bathing by soaking the umbilical cord before the umbilical cord comes off.

According to Allam et al Research (2015), researchers give instructions to each mother on how to clean the umbilical cord and surrounding areas at least 2 x / day and when the baby changes diapers. After washing hands with water and soap the mother is recommended to drip breast milk on the umbilical cord (4-6 drops) and let it dry. In line with the results of Supriyanik 's research (2011) showed that the average length of umbilical cord release in the breast milk treatment group was 4 days 3 hours and dry gauze treatment was 6 days 4 hours. The results of this study showed that the release time given breast milk treatment 2 days 1 hour faster than with dry gauze treatment for 6 days 4 hours. There is a significant difference between cord care by using breast milk and with dry gauze against the long release of the newborn's umbilical cord.

V. Conclusion

The average delivery time of the baby's umbilical cord in the topical breastfeeding group was 4.66 with a minimum time of 4 days and a maximum of 6 days. The average release time of the baby's umbilical cord in the sterile gauze usage group was 5.76 with a minimum time of 4 days and a maximum of 7 days. There is an effect of topical breastfeeding on the release of the baby's umbilical cord (p value = 0.000), compared to the use of sterile milk. Release of baby's umbilical cord at topical breastfeeding 1 day faster than sterile gauze.

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