



## Length of Neonatal Cord Detachment in Open Treatment

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### ABSTRACT:

**Background:** Newborns are very at risk of infection, one of which is infection in the umbilical cord. After the baby is born, the umbilical cord separates from the placenta and requires treatment to prevent infection. This study aims to determine the difference in the length of the release of the open and closed umbilical cord. **Methods:** The research method used in this study is quantitative with analytical observational and cross-sectional approach. The subjects in this study were all newborns born at X Hospital aged 0 days until the umbilical cord was separated with a sample of 72 infants per group. Analysis of the data used is the Mann Whitney test. **Results:** Length of umbilical cord detachment 1-4 days by 5.9%, length of time 5-7 days by 82.2%, length of time > 7 days by 11.8% of respondents and there is a difference in length of umbilical cord clearance in open and closed treatment neonates with p value = 0.000 ( $\alpha < 0.05$ ). **Conclusion:** Health care practitioners should use the open method in providing umbilical cord care services.

### KEYWORDS:

Length of umbilical cord detachment, neonatus, open care, closed care.

### I. INTRODUCTION

Perinatal infections are infections that occur during the neonatal, intranatal and postnatal periods in neonates (Armini, Marhaeni, & Sriasih, 2017). Newborns are very at risk of infection, one of which is infection in the umbilical cord. The occurrence of infection in the umbilical cord due to wet wounds and can be the entry point for tetanus germs which is very often the cause of newborn death (Kholidati & Rohmawati, 2019). The umbilical cord (funiculus umbilicalis) is a channel that connects the fetus to the placenta during pregnancy and it is this channel that supplies nutrients and oxygen to the fetus during pregnancy (Kabila, 2014). In 2010 the World Health Organization (WHO) found an infant mortality rate of 560,000 caused by umbilical cord infection. The

infant mortality rate in Southeast Asia due to umbilical cord infection is 126,000 (Wulandini & Roza, 2018). The second death after asphyxia neonatorum which ranges from 49% to 60% is infection of newborns in Indonesia with an incidence ranging from 24% to 34% (Manuaba in Asiyah, Islami, & Mustagfiroh, 2017).

One of the care for newborns is umbilical cord care, after the baby is born the umbilical cord is separated from the placenta, then care is needed on the baby's umbilical cord to prevent infection. Umbilical cord care is the act of caring for or maintaining the baby's umbilical cord after the umbilical cord is cut or before the umbilical cord has fallen. Umbilical cord care aims to keep the umbilical cord dry and clean and to allow the umbilical cord to be exposed to air so that it dries quickly and falls off (Noorbaya, 2019). Treatment of the closed umbilical cord with alcohol and bethadine is then glued to the umbilical base (Sodikin, 2019). According to (IDAI, 2016) open umbilical cord care in the umbilical cord does not need to be cleaned with soap or other liquids and leave it uncovered with gauze. Poor care of the umbilical cord is one of the factors that can affect the drying time and the length of time it is released so that it is at risk of causing infection.

Dore's research in Sodikin (2019) proves that there is a difference between umbilical cord care that uses cleaning alcohol and is wrapped in sterile gauze. These researchers concluded that the length of the umbilical cord detachment in the alcohol group was 9.8 days and dryness was 8.16 days. These researchers recommend that umbilical cord care with alcohol use is discontinued. Asiyah (2017) showed the majority of umbilical cord detachment 1 -7 days in open treatment as much as 95% while in closed treatment 77.5%.

Improper care of the umbilical cord can result in detachment of the old umbilical cord which is at risk of infection. This can be seen from research (Astria, 2018) in the working area of Fajar General Hospital, Sarirejo Subdistrict, Medan Polonia Sub-district, in 2018 it was found that the incidence of infection in 2 babies with umbilical



cord detachment for 2 weeks (14 days). Based on a survey conducted by researchers at X hospital, it was found that the umbilical cord was detached for up to eight days, which greatly affected the baby's quality of life if there was an infection in the umbilical cord, while at Y hospital it was about 4-7 days where the umbilical cord went out faster. The difference in umbilical cord care in this hospital has made researchers interested in examining the length of umbilical cord detachment because it will affect the baby's quality of life. This study aims to determine the difference in the length of time for the release of the neonate's umbilical cord in open and closed care.

## II. METHOD

This study is a quantitative study with an analytical observational design with a cross-sectional approach. The population of this study was

neonates or newborns to the umbilical cord with treatment method 1 at X Hospital and treatment method group 2 at Y Hospital. The sampling technique used is purposive sampling which is sampling with certain techniques and objectives and certain considerations that will be made by researchers based on the characteristics and characteristics of the population that have been previously known (Hasmi, 2016). The number of samples used were 152 infants, the number of samples was divided by two so that the samples needed at Y Hospital were 76 infants and X Hospital were 76 infants. The difference in length of umbilical cord detachment in open and closed treatments was carried out through a non-parametric statistical test, namely the Mann Whitney test to test the median difference of the two independent groups.

## III. RESULT

Table 1. Frequency distribution of sex of infants with open and closed umbilical cord care

	Frequency Distribution	
	N	%
Sex		
Male	80	52,6
Female	72	47,4
Length of umbilical cord detachment		
1 - 4 days	9	5,9
5 - 7 days	125	82,2
>7 days	18	11,8
Total	152	100

Table 1 showed that the majority of neonates were male with a presentation of 52.6%. The length of the umbilical cord detachment was mostly 5-7 days as much as 82.2%.

Table 2 Distribution of Mean Gestational Age and Birth Weight of Babies in Open and Closed Cord Care

	Mean	Std.deviation	Minimum	Maximum
Gestational Age	37,8 weeks	0,78	36 weeks	40 weeks
BBL	3120 gram	362,05	2395 gram	4100 gram

Table 2 presents the respondent's average gestational age in weeks of 37.8 weeks (St. deviation 0.78) with the lowest gestational age of 36 weeks and the highest of 40 weeks. The average

birth weight of the respondents was 3120 grams (St. deviation 362.05) with the lowest weight being 2395 grams and the highest being 4100 grams.

Table 3 Frequency distribution of the length of the baby's umbilical cord detachment based on open and closed umbilical cord care

Umbilical Cord Care



Length of umbilical cord detachment	Open		Closed	
	N	%	N	%
1 – 4 days	9	11,8	0	0
5 – 7 days	66	86,8	59	77,6
>7days	1	1,3	17	22,4
Total	76	100	76	100

Table 3 showed that the average of open and closed umbilical cord detachment was 5-7 days, open treatment was 86.8% and closed treatment was 77.6%.

Table 4 Tabulation between differences in baby's umbilical cord detachment by type of care

Length of umbilical cord detachment	Treatment	N	%	1-4 days	5-7 days	>7 days	P-value
	Open Treatment		76	50	9	66	1
Closed Treatment		76	50	0	59	17	
Total		152	100	9	125	18	

Table 4 showed that there was a significant difference in the length of umbilical cord detachment between open and closed in X and Y Hospital with p value = 0.000 < (0.05).

#### IV. DISCUSSION

The umbilical cord (funiculus umbilicalis) is a channel that connects the fetus to the placenta during pregnancy and it is this channel that supplies nutrients and oxygen to the fetus during pregnancy (Kabila, 2014). The umbilical cord that has been cut requires good and correct care so that it is kept clean and avoids the possibility of infection. The latest modern treatments are not allowed to put anything on the umbilical cord but are left open to keep it dry (Sodikin, 2019). Newborns have their umbilical cord loose influenced by several factors, namely the way the umbilical cord is cared for, the incidence of infection, the humidity of the umbilical cord, and environmental sanitation conditions (Riksani, 2012).

A damp umbilical cord can also be influenced by gender. The sex of baby boys slows down the release of the umbilical cord because when urinating it often hits the baby's diaper so that the umbilical cord becomes moist. This is in line with research (Putri, Yuliani, & Widefrita, 2017) that the female sex is faster than the male gender, because when urinating, male babies often hit the upper diaper so that the umbilical cord is moist.

Based on the results of the study (Asiyah, Islami, & Mustagfiroh, 2017) stated that open

umbilical cord treatment is more effective in an effort to accelerate the release of the umbilical cord. According to Saifuddin in (Asiyah, Islami, & Mustagfiroh, 2017) good and correct umbilical cord care will fade on the 5th and 7th day without any complications. The results of this study are also in accordance with the study of the average length of umbilical cord detachment of 6 days without any complications (Pitriani, Damayanti and Afni (2017); (Reni dp, 2018). The length of umbilical cord detachment can also be influenced by gestational age because babies born prematurely with birth weight Low birth weight is very at risk of infection so that it affects the length of umbilical cord detachment (Trijayanti, Martanti & Wahyuni, 2020).which states that premature babies are susceptible to umbilical cord infection due to immature immunity.

Newborns require umbilical cord care with the act of caring for or maintaining the baby's umbilical cord after the umbilical cord is cut or before the umbilical cord has fallen. After the baby is born, cutting the umbilical cord must also be sterile because it can result in the transmission of tetanus neonatorum (Kabila, 2014). Newborns on unsterile cord care can also cause omphalitis, which is an infection of the umbilical cord characterized by a wet or sticky umbilical cord accompanied by an unpleasant odor (Sodikin, 2019).

One of the factors is that the baby's umbilical cord takes a long time to fall due to the sanitary conditions of the neonate's environment.



Respondents in each group in this study were provided with information on how to care for babies at home and were observed until the umbilical cord fell off. However, environmental sanitation, water quality and cleanliness of baby's clothes can carry bacteria that make colonies around the umbilical cord causing the umbilical cord to become moist.

## V. CONCLUSION

Treatment of the umbilical cord after the baby is born needs to be considered to avoid infection. The umbilical cord which was treated with open vaginal care within 5-7 days (86.8%). The length of umbilical cord detachment was significantly different between open and closed treatments, with  $p$  value = 0.000 ( $\alpha < 0.05$ ). Health care practitioners should use the open method in providing umbilical cord care services

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