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The Differences of Omphalitis Events Between Closed and Open Cord Care with Dry Gauze

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ABSTRACT

The high morbidity and mortality rate of newborns throughout the world is caused by infection. Southeast Asia estimated that there were 220,017 infant deaths due to unclean umbilical cord care. Umbilical cord care is very important, especially for mothers giving birth because mothers are more aware of the baby's development every day. This study aimed to determine the difference between the incidence of omphalitis between dry gauze closed umbilical cord care and open umbilical cord care in Midwife S. L. Clinic and Teratai Clinic, East Jakarta in 2020. This research is quantitative research with an analytical survey method with a cross-sectional approach. The sample in this study was 67 people. The sampling technique is total sampling. The research instrument consisted of secondary data and observation sheets. Chi-square test results there were differences in the incidence of infection between the treatment of dry gauze closed umbilical cord with open umbilical cord care where (ρ=0.000). There was a difference between the occurrence of infection between the treatment of the cord that is closed with dry gauze and open. Post-partum women need to increase their knowledge about umbilical cord care both with the open umbilical cord care method so that they can apply the open umbilical cord care method and reduce the incidence of omphalitis in infants.

Keywords: umbilical cord; omphalitis; infants; dry gauze

INTRODUCTION

The umbilical cord or umbilical cord is a lifeline for the fetus during pregnancy because it is through the umbilical cord that all the needs for the fetus are met (Sodikin, 2012). The umbilical cord extends from the fetus to the placenta and contains the umbilical vessels, namely two arteries and one vein. The umbilical cord is protected and covered by Wharton's jelly; a sticky substance formed from the mesoderm. The umbilical cord is completely covered by the amniotic layer along with that which covers the placenta (Mandriawati, 2011). The high rate of morbidity and mortality of newborns worldwide is caused by infection. In 2017 the World Health Organization (WHO) found an infant mortality rate was 560,000, while in Africa the infant mortality rate due to umbilical cord infection ranged from 126,000 (21%); in Southeast Asia it was estimated that there were 220,017 infant deaths caused by unsanitary umbilical cord care (Wihono, 2010).

One of the Health Development Programs for 2015-2019 is to improve mothers' and children's Health and Nutritional Status. Neonatal mortality contributes to 59% of infant deaths, where one of the biggest causes is Tetanus Neonatorum infection caused by Clostridium tetani bacillus. This disease infects newborns through cutting the umbilical cord with unsterile tools and incorrect umbilical cord care techniques (Simanungkalit & Sintya, 2019). Neonatal deaths due to tetanus neonatorum based on WHO data in 2015 for countries in Southeast Asia were 581 babies. Neonatal Tetanus Cases in Indonesia in 2014 were 84 babies from 15 provinces with a mortality rate 54. The risk factors for mortality include umbilical cord care with alcohol, iodine, traditional, and unknown umbilical cord care. The Case Fatality Rate (CFR) of Tetanus Neonatorum in 2014 was 64.3%, an increase compared to 2013, which was 53.8% (Simanungkalit & Sintya, 2019).

East Java Provincial Health Office report that in 2008 there were 4,368 babies died from 558,934 birth. Meanwhile, according to BPS estimates, IMR in East Java Province in 2008 amounted to 32.2 per 1000 live births. Even though it shows a downward trend over the last 4 years but IMR, this still needs to be added to the 2010 national target, which is projected at 25.7 per 1000 births life (Pramono, Wulansari & Sutikno, 2013).

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In the results of a study conducted by Irvina (2012), as cited in (Laksono, 2019), entitled Picture of the Incidence of Newborn Infection at Dr. M. Djamil Padang Hospital, it was found that most of the 66% of infants aged <8 days for the incidence of mild infection and the incidence of omphalitis most of the 81% of infants aged <8 days. IMR in DKI Jakarta Province, according to data from the Family Health Section of the DKI Jakarta Health Office in 2016 of 4 dead babies per 1,000 live births compared to 2015 of 3 dead babies per 1,000 live births, compared to 2014 of 7 babies per 1,000 live births. The MDGs target for IMR in 2015 was 23 infant deaths per 1,000 live births, meaning that DKI Jakarta Province has achieved the MDGs target to reduce infant mortality from 1990-2015 (Darmanik, 2019).

Umbilical cord care is very important, especially for mothers giving birth, because mothers are more aware of the baby's development every day. How to care for the umbilical cord in infants is very diverse and varies from modern care using antiseptic materials such as sterile gauze, 70% alcohol gauze, and open care using the dry principle (Sodikin, 2012). Open umbilical cord care using dry and clean principles is umbilical cord care that does not wrap the baby's umbilical cord puncture because it can cause the umbilical cord to become wet, making it easier for germs to enter and cause umbilical cord infection.

Umbilical cord care is very important, especially for mothers giving birth, because mothers are more aware of the baby's development every day (Prawirohardjo, 2014; Pricilia, 2016). How to care for the umbilical cord in infants is very diverse and varies from modern care using antiseptic materials such as sterile gauze, 70% alcohol gauze, and open care using the principle of dry. Open umbilical cord care using dry and clean principles is umbilical cord care that does not wrap the baby's umbilical cord puncture because it can cause the umbilical cord to become wet, making it easier for germs to enter and cause umbilical cord infection.

Kendangsari Surabaya Mother and Child Hospital have an average of 60-70 deliveries in one month (Zacharia, 2019). The umbilical cord treatment was carried out in the hospital with an open dry (alcohol smear), and one baby had an incidence of omphalitis. The average cord detachment with this treatment was less than 1 week. The reality in society is that many mothers still follow the Cultural Traditions that exist in society—for example, putting or wrapping traditional herbs to the umbilical cord so that the umbilical cord can be released quickly (*puput*) or covered with coins so that the center is not bulging. Even though these actions do not need to be done, they can be dangerous. So, if given potions, coffee grounds, and coins can transmit germs. As a result, infection or tetanus is very dangerous because the mortality rate is high (Pusponegoro, 2016). This disease is caused by the entry of Tetanus Germ Spores into the body through the umbilical cord, either from unsterilized tools, the use of drugs, powder, or leaves sprinkled into the umbilical cord so that it can cause infection.

One of the efforts to prevent umbilical cord infection and neonatal tetanus is umbilical cord care. Umbilical cord care is a treatment action that aims to treat the umbilical cord in newborns to keep it dry and prevent infection (Damanik, 2019). The prevention of umbilical cord infection can be prevented by taking good and correct care of the umbilical cord, namely with the principle of dry and clean care. The more the umbilical cord is kept dry and clean, the faster the umbilical cord will be separated from the baby's stomach. Based on the data and information that the authors obtained at the BPM Midwife S.L. East Jakarta on November 1, 2019, 46 babies per 81 live births had umbilical cord infection (omphalitis) in the last 3 months. Therefore, the authors are interested in conducting a study entitled Differences in Omphalitis Incidence between Closed and Open Cord Treatment with Dry Gauze. This study aims to determine the difference between the incidence of omphalitis between dry gauze closed umbilical cord care and open umbilical cord care in Midwife S.L Clinic and Teratai Clinic, East Jakarta, in 2020.

METHOD

The research design used is a survey method with a cross-sectional approach. The population in this study were newborns from mothers who had given birth in September – December 2019 at BPM Midwife S. L., consisting of 67 people. The inclusion criteria are newborns who had no complications of diseases. The sample used is the total population of 67 respondents with a purposive sampling method. The study was conducted in January 2020. The research instruments used in this study were observation sheets and patient medical records obtained from the BPM where the study was conducted. The type of data to be analyzed is secondary data. The variables in the secondary data include the care of the umbilical cord closed with dry and open gauze and the incidence of omphalitis. Data were analyzed by univariate and bivariate analysis. There is no ethical issue for conducting this study.

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RESULT

Table 1. Frequency Distribution of Respondents Based on Umbilical Cord Care Covered with Dry Gauze and Open

Umbilical Cord Care	Frequency	Percentage
Closed	43	64.1
Open	24	35.9
Total	67	100

Based on Table 1, it can be concluded that out of 67 respondents, the majority performed closed umbilical cord care which was 43 people (64%).

Table 2. Frequency Distribution of Respondents Based on Omphalitis Events

Omphalitis	Frequency	Percentage
Yes	46	69
No	21	31
Total	67	100

Based on Table 2 above, it can be concluded that, out of the 67 respondents, most respondents had babies with omphalitis, which were 46 people (69%).

Table 3. The Differences in the Incidence of Omphalitis between Dry and Open Gauze-Covered Umbilical Cord Care

Umbilical cord care	Case of Omphalitis				Total		p
	Yes		No				
	n	%	n	%	n	%	
Open	3	6.5	21	100	24	35.9	0.000
Closed	43	93.5	0	0	43	64.1	
Total	46	100	21	100	67	100	

Table 3 shows that of the 46 respondents whose babies had omphalitis, almost all the respondents underwent closed umbilical cord care, which was 43 people (93.5%). Out of 21 respondents whose babies did not have omphalitis, all the respondents underwent open umbilical cord care. The chi-square test results showed a difference in the incidence of omphalitis between open and closed umbilical cord care (p=0.000).

DISCUSSION

Good and correct umbilical cord care will have a positive impact, the umbilical cord will fall off on the 5th and 7th day without any complications (Damanik 2019; Mandriawati, 2011). Poor umbilical cord care causes the umbilical cord to become loose for a long time. The risk when the old umbilical cord is separated is the occurrence of umbilical cord infection and neonatorum tetanus (Reni, Nur, Cahyanto & Nugraheni, 2018). The results of Reni's research (2018) on the difference between open umbilical cord care and dry gauze with the length of umbilical cord detachment in newborns showed that of the 40 case group respondents, there were 31 respondents (77.5%) with the length of umbilical cord detachment ranging from 1-7 days and 9 respondents (22.5%) with the length of umbilical cord detachment > 7 days. The mean time of umbilical cord detachment for infants treated with dry gauze was 6.55 days (Sodikin, 2012).

According to Sumaryani (2019) regarding umbilical cord detachment and omphalitis, a study of treatment with breast milk, 70% alcohol, and open dry technique at the University of Muhammadiyah Yogyakarta showed the incidence of mild omphalitis in umbilical cord care with 70% of 6.4%, dry open. 3.2%, while the umbilical cord treatment with breast milk did not find omphalitis (Muliawati & Susanti, 2015). The incidence of mild omphalitis that often occurs in umbilical cord care with 70% alcohol and dry open is not significantly different. However, there is a difference in the proportion of events.

Dry gauze treatment is the treatment of the umbilical cord that uses a wrap in the form of dry gauze (clean or sterile); the umbilical cord is kept clean and dry so that infection does not occur. The gauze is loosely woven, large-edged, and absorbs fluids well. The process of releasing the umbilical cord needs to be facilitated by the open air. The umbilical cord should not be tightly closed with anything because it will make it moist (Mullany et al., 2009). According to

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the researcher's assumption, respondents who perform closed umbilical cord care at the research site are still lack of knowledge about umbilical cord care so that they experience omphalitis and still believe in traditions and culture that cover the umbilical cord with dry gauze so as to avoid bacteria.

The results showed a difference in the incidence of omphalitis between umbilical cord care closed with dry gauze and open. This is in line with Reni's research (2018) on the difference between open umbilical cord care and dry gauze and the length of umbilical cord detachment in newborns, showing that there is a significant difference between open umbilical cord care and dry gauze and the length of umbilical cord detachment in newborns (Mullany et al., 2009). The length of the umbilical cord detachment is influenced by several factors including the incidence of infection, how to care for the umbilical cord, the humidity of the umbilical cord, and environmental sanitation conditions around the neonate. A comprehensive study was conducted in Southern Nepal to identify the specific risks associated with omphalitis in the home birth setting. These investigators identified proximate, intermediate, and distal determinants of omphalitis. Proximally, the disease agent is identified, and the etiology of the pathogen is explored. Among other things, delivery practices, hygiene of caregivers and birth attendants, occurrence of skin-to-skin contacts encountered by newborns, cultural practices of applying substances to the umbilical cord, and breastfeeding norms were analyzed. Distal, environment, ethnicity, socioeconomic status, health system, and education level are considered as determinants of this disease (Muliawati & Susanti, 2015; Susanti & Kartini, 2016). A study conducted in Subang found a significant difference in the meantime of umbilical cord opening between the ASI method and the Kassa method (Selvia & Darwis, 2016).

This study is also in line with research (Susanti, 2017) on a descriptive study of umbilical cord care in newborns at the Gajahan Health Center, Pasarkliwon District, Surakarta City, 2017, 2 infants (7%) and no infection. According to the assumptions of the researchers. Respondents at the research site, are still doing closed umbilical cord care with dry gauze because people still believe in the cultural tradition that wraps the umbilical cord so that it can fall off quickly and avoid bacteria and there is still a lack of knowledge about proper and correct umbilical cord care. Besid the type of care, themaintaining of universal precaution policy in the hospital is important to prevent the transmission of infectious diseases in health facilities (Rahmawati, Herawati, Indrayani & Wijaya, 2022).

CONCLUSION

Based on the results of research on the difference in the incidence of omphalitis between umbilical cord care closed with dry and open gauze at BPM Midwife S.L. East Jakarta in 2020, it can be concluded that the majority of respondents (64%) underwent closed umbilical cord care, 69% did not experience as many omphalitis events, and there was a difference in the incidence of omphalitis between open and closed umbilical cord care in the value ($\rho<0.005$). Health workers, especially nurses and midwives, must have skills related to umbilical cord care according to evidence based. Postpartum mothers are expected to be able to increase knowledge about umbilical cord care with the right open method in order to avoid the occurrence of omphalitis in infants. Midwives are expected to be able to collaborate with community leaders and other health parties in conducting counseling in the health sector, especially to mothers who are about to have babies and those who are having babies in carrying out proper and correct care of the baby's umbilical cord. Future researchers are expected to be able to examine other umbilical cord care techniques to become evidence based in midwifery care for newborns.

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