REVIEW ARTICLE

Effectiveness of Releasing the Umbilical Cord Using Dry Gauze and the Open Technique: A Review

Febi Ratnasari[1,2], Zahrah Maulidina Septimar[1], AYG.Wibisono[2], Farzana Yasmin[3], Faridah Binti Mohd Said[4]

[1] Post Graduate Nursing Student of Lincoln University College, Wisma Lincoln, No, 12-18, Jalan SS 6/12, 47301 Petaling Jaya, Selangor Malaysia
[2] Faculty of Nursing STIKes Yatsi, Jl. Aria Santika No.40A, T.005/RW.011,Margasari, Kec. Karawaci, Kota Tangerang, Banten 15114, IndonesiaTangerang, Indonesia
[3] Faculty of Science Lincoln University College, 2, Jalan Stadium SS 7/15, Ss 7, 47301 Petaling Jaya, Selangor, Malaysia
[4] Faculty of Nursing, Lincoln University College, 2, Jalan Stadium SS 7/15, Ss 7, 47301 Petaling Jaya, Selangor, Malaysia

ABSTRACT

One indicator of success of a country is to assess Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR). The purpose of this study is to inform the reader about the studies that has been done relating to the Effectiveness of Releasing the umbilical Cord Using Dry Gauze and Open Techniques" in maternity nursing. This study was done using the literature review method. The reviewed literature is a detailed summary of a study that has been conducted on a given issue to inform the reader what is already known about the topic and what is not yet known, as well as to examine rationally for previous research or future research ideas. Researchers searched for data through Google Scholar with national and international restrictions. Researchers selected 20 journals that will be included in the results. From the 20 journals, 8 journals were of the opinion that open umbilical cord care is more effective than gauze treatment. In comparison, 12 journals stated that umbilical cord care using gauze takes longer than open umbilical cord care.From literature studies, it can be concluded that there are differences between umbilical cord care using gauze and open techniques.

Keywords: Long umbilical cord, Dry case, Open technique

Corresponding Author:
Febi Ratnasari, M.Kep.
Email: febiratnasari14@gmail.com
Tel: +6285311022355

INTRODUCTION

The indicator for the good development of a country lies in its quality of healthcare, where maternal and infant mortality rates are low (1). The umbilical cord of a newborn is one of the places through which bacteria enter the body, making it susceptible to infection. To prevent infection, good and correct umbilical cord care is needed (2). Neonatal tetanus is one of the umbilical cord infections, where the incidence of TMN (maternal and neonatal tetanus) is at risk. The prevalence of TMN is widespread across 58 countries, including Indonesia. Data obtained from WHO in 2015, Southeast Asia has an incidence of 581 babies who died from tetanus neonates (3). In Indonesia, there were 84 cases of tetanus neonates in 2014 from 15 provinces, and the case fatality rate (CFR) of tetanus neonates in 2014 was 64.3%. The result is quite an increase compared to 2013, which was 53.8% (4). Banten province in 2011 found 33 cases of neonatal tetanus, while in 2010, it was 41 cases (5).

Tetanus neonates usually occur in infants aged 0-28 days (neonatal) (6). The risk factors that cause neonatal mortality are probably related to the death of infants with neonatal tetanus. When an infant's umbilical cord becomes infected, the umbilical cord becomes festering, mixed, red, hot, swollen, and the area around the base of the umbilical cord becomes redresulting into edema (7). So the researchers were interested in looking for literature regarding umbilical cord care or umbilical cord ablation using dry gauze and open techniques.

MATERIALS AND METHODS

In this study, a literature review study method was used. A Literature review is a comprehensive overview of research carried out on a specific topic to show readers what they already know about that topic and what is not yet known to find a rationale for research that has been done or for further research ideas (8). Each journal was selected based on the criteria present in the conclusion. Before the author makes conclusions from several journals that have been collected, the author will identify

in summary from a table containing the author's name, year of publication, sample, title, and research results. After collecting many several results from the literature, the writer will assess the application of self-directed learning in boosting nursing students' competency in the form of a debate.In this study, a literature review study method was used.

RESULTS

The results of the quick reading of the literature search found as many as 45 journals that matched the topic. Among them, 20 journals are selected for this research, and 25 are rejected because they did not match the criteria (Figure 1). From the 20 journals, 8 journals were of the opinion that open umbilical cord care is more effective than gauze treatment. Meanwhile, 12 journals stated that umbilical cord care using gauze takes longer to heal than open umbilical cord care (Table I).

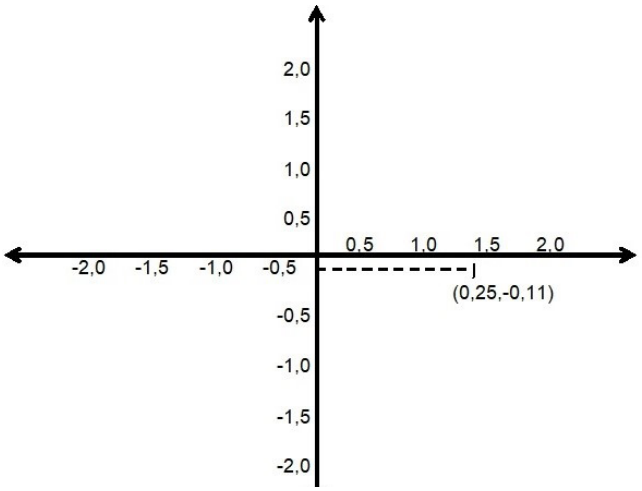

Figure 1: Flowchart of the selected articles for this review

DISCUSSION

There is a difference in the length of time taken to remove the umbilical cord. The longer the process of releasing the umbilical cord, higher is the exposure to humidity, the easier it is for the infection to enter. As long as health infrastructure and facilities are easily accessible, there will be many chances for umbilical cord care. There is a significant difference between treatment using the open technique and using sterile gauze (9). Care of the umbilical cord is one of the efforts to prevent infection of the umbilical cord through some simple actions. Cord must be cleaned always and must be kept dry; hands must be washed with clean water with soap before treating the umbilical cord (10). The most effective treatment in the newborn's umbilical cord was not utilizing sterile gauze and without giving anything other than being able to speed the cutting of the umbilical cord to prevent infection, consequently lowering the Infant Mortality Rate (IMR) (11).

The "open" umbilical cord is more "exposed to" air "so that" water and the jelly like substance will evaporate "faster" so that the "process" of releasing the umbilical cord will also be "fast". This is the appropriate "way" of treatment "in" a good and correct way. It is known that there is no influence between birth weight and sex in infants in the cause of infection. This situation can be influenced by humidity and cleanliness of the "cord", which is "good", if there is "absence" of infection. Maternal gestational age shows that "all" respondents "have entered the gestational age at term, namely 38-40 weeks (100%), both open and closed care (12). The effectiveness of open umbilical cord care is more appropriate than closed umbilical cord care. In newborns, bathing the umbilical cord by immersing it in water directly is not allowed because it can make the umbilical cord moist, causing the drying process to take longer. Instead, the baby and the umbilical cord should be wiped with warm water at least twice a day, depending on the clothes that come into direct contact with the umbilical cord is either dirty or wet.If the umbilical cord is also not fixed tightly closedthen it can slow down releasing the umbilical cord (13).

CONCLUSION

It can be concluded from literature studies that there are differences between umbilical cord care using gauze and open techniques, where open techniques are faster than using gauze. Knowledge of cord care plays an essential role in infection prevention. So mothers should seek more information about umbilical cord care.

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Table I: Summary of twenty journals

No	Researcher	Results / conclusion
1	Fatrin & Vista, 2016	Open technique 5-7 days & closed technique >7 days. So it was concluded that the umbilical cord "using the "open technique" was released faster than "comparing" to the closed technique (using dry gauze).
2	Trijayanti et al., 2020	The average release time of the open care was 98.7 hours, and the closed care was 170.6 hours. There was a difference of 71.9 hours,
3	Asiyah et al., 2017	Open technique <5-7 days & closed technique >7 days, with significancy value 0.022.
4	Kesehatan et al., 2019)	Open technique <5-7 days & dry sterile gauze >7 days. There are differences in umbilical cord care using open treatment and using dry sterile gauze.
5	Reni, Dian Puspita. et al., 2018	Babies who are treated with umbilical cord openly have a faster chance of releasing it compared to using dry gauze
6	Yuliana et al., 2017	Release of the umbilical cord with an open technique takes 5-7 days if the baby is placed in an open room, and more than 7 days if the baby is in an incubator.
7	Tirta Anggraini, 2019	The conclusion in this study was that there was no difference in the treatment using dry gauze and leaving it open
8	Pitriani et al., 2017	The release time using open gauze is 6 days while using dry gauze is >7 days. There is a significant difference between open and closed treatments (using dry gauze).
9	Lopez-Medina et al., 2020	Results The mean umbilical separation time: 6.61 days. The incidence of omphalitis was 3.7%; granuloma was 8.6%. Separation time predictors were wetting recurrence, birth weight, intrapartum antibiotics, birth season, and Apgar < 9 (R2 = 0.439 F: 15.361, p <0.01).
10	Stewart et al., 2021	Providing topical antimicrobials in umbilical cord care in resource-limited countries is still necessary whereas in high-resource countries, it does not appear to provide clear benefits (open treatment is an option)
11	Gallina et al., 2016	Open technique treatment is faster than using 70% alcohol
12	Care et al., 2016	umbilical cord care with a dry method dries faster than using alcohol and the incidence of infection is not different from using 70% alcohol
13	Mannan et al., 2015	The mean cord separation time in newborns of chlorhexidine group was significantly longer than dry cord care group (p < 0.001).
14	Al-shehri, 2019	The mean cord separation time in newborns of chlorhexidine group was significantly longer than dry cord care group (p < 0.001).
15	A. Allam, 2015	The mean cord separation time was 4.2±20.45 among mother breast milk group and 7.12±10.39 in dry cord care group respectively.
16	Guen & Launay, 2021	Only 3 out of 4293 (0.07%) babies with dry method treatment had the infection, while out of 4404 babies who used antiseptic, none had infection.
17	Uysal & Dьzkaya, 2017	There was no difference in infection and length of time to dry the umbilical cord between umbilical cord care using 70% alcohol, povidone-iodine, and the dry method, the only difference being ease of use and low cost.
18	Aydemir et al., 2012	The use of 70% alcohol slows the drying of the umbilical cord, 0.4% chlorhexidine can be effective and safe to use for umbilical cord care in healthy newborns.
19	Shang & Sun, n.d.	effectiveness of different umbilical cord care in infants. Our study will generate evidence of cord care for infants and provide suggestions for clinical practice or guideline
20	Masjidah, SA, et al.	The use of breast milk as a topical antiseptic on the umbilical cord accelerates the release of the umbilical cord by an average of 4 days compared to sterile gauze which takes 6 days.

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