



Research Article

A study to assess the effectiveness of breast milk application on umbilical cord stump among newborns of mother's undergone caesarean section in tertiary care maternity hospitals of Sangli, miraj, kupwad corporation area

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Abstract

Umbilical cord infections contribute to the increased Morbidity and mortality in newborns of developing countries, where infants are exposed to unhygienic practices. The world health organization (WHO) estimates that 4 million children die each year during the neonatal period, with most of deaths occurring in developing countries. The objective of the study were to assess the existing condition of umbilical cord stump to assess the effect of breast milk application on umbilical cord stump.

Material and method: Quasi experimental two group pre test and post test design was used. The sample for the study was n=90 normal babies born to mother undergone cesarean section by using non probability purposive sampling method. In pre test observation of the cord for normality is checked for experimental and control group. In intervention phase breast milk is applied to the umbilicus of babies from experimental group, two times a day and observation is done once in the morning till the cord falls off. Through observation scale the data was analyzed using paired "t" test. The totals mean score of breast milk application group after intervention was 5.22 and in control group. (mean 9.36. The research hypotheses (H1) were accepted as breast milk application is highly effective in the early separation of cord stump.

Keywords: Breast milk, umbilical cord stump

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1. Introduction

children are the feature of any nation. In India about $\frac{3}{4}$ th of the population lives in villages. It is imperative to preserve this wealth and to promote their well being through exercising utmost care in order to make them healthy and to protect them from deadly disease [1]

Umbilical cord infections contribute to the increased morbidity and mortality in

newborns of developing countries, where infants are exposed to unhygienic practices. The world health organization (WHO) estimates that 4 million children die each year during the neonatal period, with most of deaths occurring in developing countries. Importantly, infections are the most common cause of neonatal mortality with approximately 1 million newborn dying annually worldwide from umbilical cord bacterial infections [2].

A wide variety of cultural practices and beliefs are associated with umbilical cord care, several reports show that the application of topical antiseptics increases the time for cord separation compared to dry cord care or non antiseptic treatment [7]. The hospital cost of umbilical cord treatment varies with the method of application and length of hospital stay. Therefore, it is important to find inexpensive alternative cord care; e.g. breast milk; in low socio-economic countries [3].

Breast milk Known as liquid gold is a deep yellow serous fluid. It contains antibodies IgA, IgG, IgM. The cells, hormones, and antibodies in breast milk protect babies from infections.

Breast milk is available easy, easy to use, and non invasive method for cord care. It can accelerate complex umbilical extraction according to its leukocytes or polymorph nuclear cells. Neonates who used human milk had lower umbilical extraction time compared to those who used antiseptic solutions. Breast milk has been used as a home remedy for minor ailments, such as conjunctivitis, insect bites and stings, contact dermatitis, and infected wounds, burns, and abrasions [4].

Need for the Study

A new born is precious not only to his/her parents, family & community & nation & child is the foundation of the health & wealth of nation. To maintain the health is not only desired but positively valued by every society thus improved level of health is the accepted the goal of all communities [5]

In India & other developing countries approximately 50% of the infant deaths occur during the neonatal period, 25% of in first 24 hours. The existing neonatal mortality rate in India is 76/1000 live birth in rural area & 34/1000 in urban area & prenatal mortality is 53/1000 in rural & 33/1000 in Urban [6].

There is general trend that clean cord care decrease the risk of infection. The application of topical antimicrobial to the cord stump is most controversial. In 1997 systemic review of randomized controlled studies comparing different methods of cord care conclude that application of topical antimicrobial is

superior to just keeping the cord clean [7]. The use of antiseptic for cord care at home gives rise to same concern there is a danger that the solution used should not be expired or should be used in appropriate concentration [8].

Cord infection adds to the cost of hospitalization and treatment. Therefore effective cord care is very important in order to prevent cord infection. The signs like redness, edema or discharge at the umbilicus may cause anxiety in mothers. It may not be very severe to be treated with antibiotics. Moreover the omphalitis may be due to poor hygienic conditions. This helps in simpler cost effective treatment. One of such intervention is the naturally available breast milk application on the cord.

Application of breast milk to the cord stumps is a practice in Kenya and Turkey. According to WHO, antibacterial factors are present in human milk. WHO has included breast milk application to the cord as harmless practices [9].

Despite the importance of umbilical cord care, both traditionally and medically, there have been few randomized trials, investigating the impact of different cord care regimen on umbilical cord separation time (UCST) particularly in developing countries. Several agents have been used for umbilical cord care in newborn infants. The most widely used agents include alcohol, triple dye, chlorhexidine 0.5%, silver sulfadiazine & bacitracin [10].

As the human milk doesn't cost anything, is readily available to the baby and is sterile, it is important to explore the possibility of using human milk topically to protect infants from umbilical cord infection in developing countries and WHO suggests the same to be researched [11].

The investigator found few literatures with the present topic of research. The countries like India with still high rate of neonate mortality and morbidity could be benefited by reducing

cord infection through breast milk application to cord stump [12]

In view of this, investigator felt the need for conducting a study to assess the effect of breast milk application for reducing cord separation time & reducing rate of infection.

Statement of the Problem

A study to assess the effectiveness of breast milk application on umbilical cord stump among newborns of mother's undergone caesarean section in tertiary care maternity hospitals of sangli, miraj, Kupwad Corporation area.

Objectives of the Study-

- To assess the existing condition of umbilical cord stump.
- To assess the effect of breast milk application on umbilical cord stump.

Hypothesis-

- **Ho-** There will be no effect of breast milk application to umbilical cord stump on cord separation time & in prevention of cord infection.
- **H₁** - Breast milk application will be effective in reducing cord Separation time and signs of cord infection.

Research design

In present study pre test post test quasi experimental research design.

Sample and sampling technique

90 babies who fulfils the criteria. They were selected by using the non probability purposive sampling method.

Inclusion criteria

1. Mothers who are willing to participate in the study.
2. Newborns who are born through L.S.C.S.
3. Post natal mothers with hospital stay of minimum 8 days

Exclusion criteria:

1. Newborns who are sick, unstable, critically ill.
2. Newborns admitted to NICU
3. Newborns who are having congenital anomalies.
4. Premature, preterm, low birth weight babies.
5. Newborns receiving antibiotics

Variable

Independent Variable:

In this study, the independent variable is breast milk application.

Dependent Variable:

In this study, the dependent variable is cord separation time & signs of cord infection.

Setting of the study

This study was proposed to be conducted in Bharati hospital, sangli, and Somshekher hospital, miraj.

Population

The population for the present study comprises, normal newborns born babies of mothers undergone cesarean section from Bharati Hospital, Sangli, Somshekher Hospital, Miraj.& Civil Hospital Miraj.

Data collection technique and tool

Observation tables were used during data collection and this was developed based on the objectives of the study and through review of literature.

Data collection instrument

Observation table (pre test and post test)

The tools consist of two sections:

Section I-

The demographic data which consists following information.

Demographic Data

Data Related To Mother

- 1) Gravida
- 2) Para
- 3) Pregnancy associated with any disease

Data Related To Newborn

- 1) Code no
- 2) Date of birth
- 3) Gender

Section II

Table I

Existing condition of cord *n-90*

Existing condition of cord	Experimental group	Control group
color of the cord - white		
Yellow		
Green		
2 arteries and 1 vein		
on touch-cold		
Warm		
Any abnormality observed		

Section III

Observation checklist on physiological parameters
Table – 2 Signs Of cord separation

Observation/days	1	2	3	4	5	6	7	8
Colour of the cord- white								
Yellow								
Brown								
Black								
Dryness of cord								
Shrinkage of cord								
Detachment beginning from the skin								
Complete separation from the skin								

Data collection was done in following steps

I) Experimental Group

a) Pre Intervention Phase

The normal newborns according to criteria were selected and the informed consent was taken from mothers of selected newborns, demographical data was collected and recorded. Cord is observed for normality and findings are recorded in checklist.

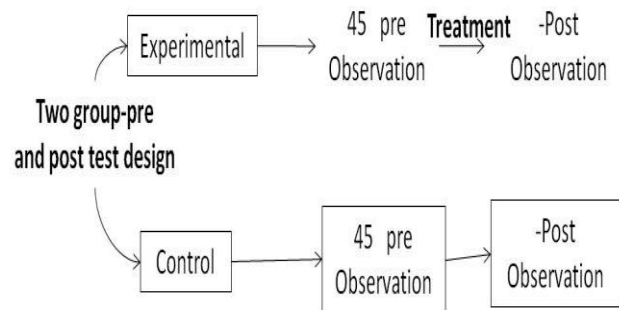
b) Intervention Phase-

Approximate 1ml of breast milk is to be withdrawn from mother in sterile wati and applied with sterile buds on the cord stump. And kept open for 10 minutes for drying.

c) Post Intervention Phase-

Assessment of the cord is done twice a day to note changes and any signs of infection; checklist is marked in the morning. Total observation is done till two days later after the cord falls off.

A quasi experimental design - 2group-pre & post test design

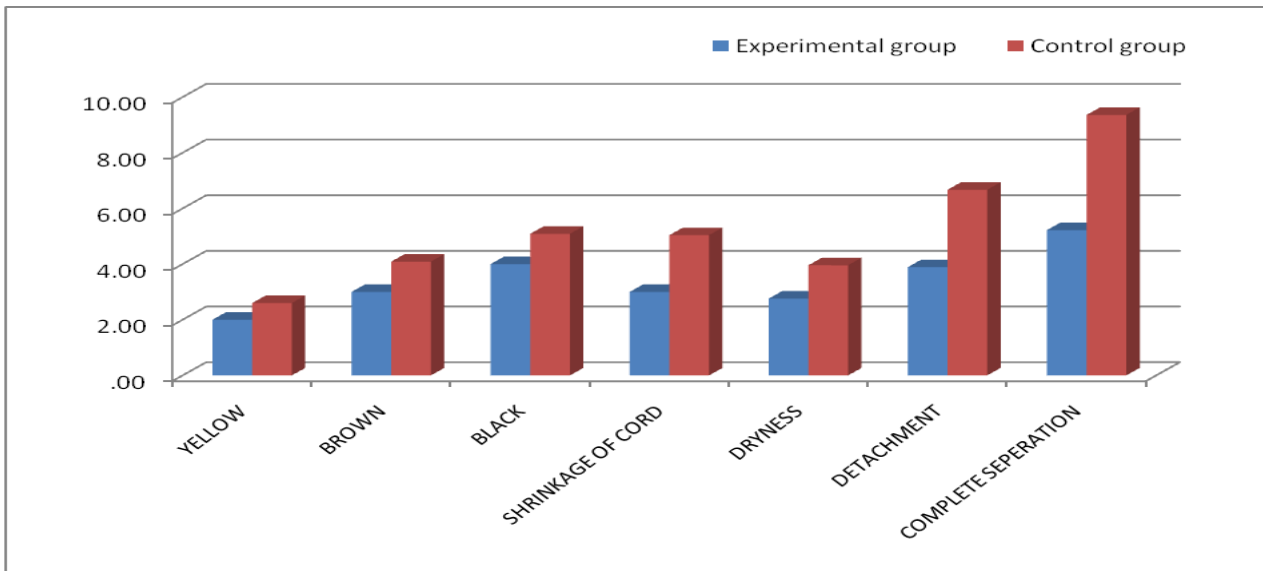


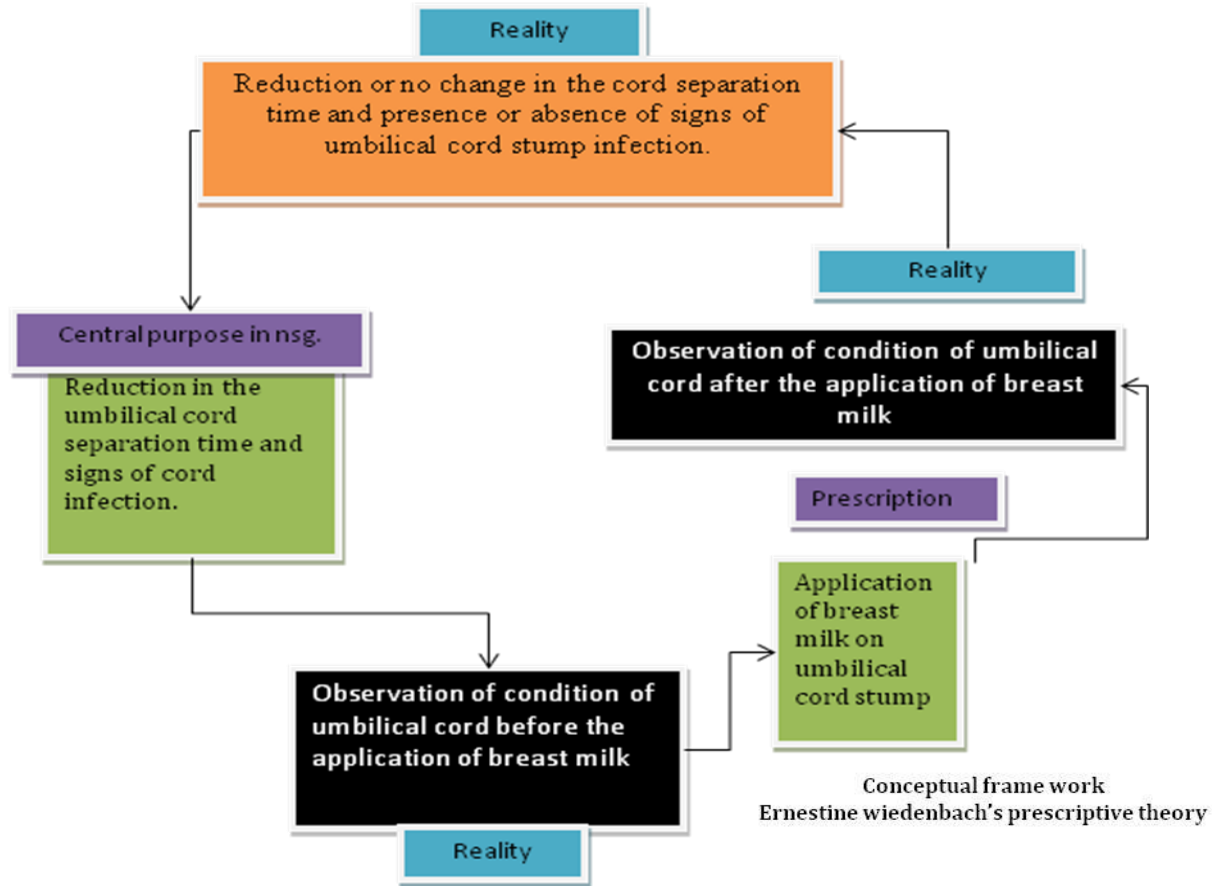
2. Result and discussion

N=90

The below figure shows the complete separation of the cord occurs early (mean 5.22days) in breast milk application group than in control group.(mean 9.36days). The research hypotheses (H₁) were accepted as breast milk application is highly effective in the early separation of cord stump.

Signs of cord separation	Group	Mean(days)	Std. Deviation	Z value	P value	Significance
White color of the cord	Experimental group	1	0	-	-	-
	Control group	1	0			
Yellow color of the cord	Experimental group	2	0	-8.124	0.00	Highly significant
	Control group	2.6	0.495			
Brown color of the cord	Experimental group	3	0	-15.602	0.00	Highly significant
	Control group	4.09	0.468			
Black color of the cord	Experimental group	4	0	-15.602	0.00	Highly significant
	Control group	5.09	0.468			
Shrinkage of cord	Experimental group	3	0.603	-16.634	0.00	Highly significant
	Control group	5.04	0.562			
Dryness of the cord	Experimental group	2.76	0.645	-9.128	0.00	Highly significant
	Control group	3.96	0.601			
Detachment of the cord	Experimental group	3.89	0.438	-28.78	0.00	Highly significant
	CONTROL GROUP	6.67	0.477			
Complete Separation Of the Cord	Experimental Group	5.22	0.42	-27.699	0.00	Highly significant
	Control Group	9.36	0.908			





Discussions of the Findings

The findings of present study have been discussed as per the objectives of the study. A finding of the study shows that the intervention of Breast milk application was significantly effective for early separation of the cord. And when compared together it was statistically found that there is highly significant difference among the breast milk application group and in control group.

Researches in the past and presently used breast milk for dryness of the cord and early separation of the cord in newborns. The findings of the present study is supported by one of the study which was done by Azar Aghamohammadi, msc, mandana zafari, msc and Leila Mosheim, msc. They have selected 130 mature newborns and splited randomly in experimental and control group, The

umbilical separation time was compared in the two groups. Data was analyzed by SPSS software. Median time of cord separation in human milk application group is (150.95±28.68 hours) significantly shorter than dry cord care group (180.93±37.42 hours) ($P<0.001$).

The findings of the present study revealed that there was significant decrease in days for cord separation from umbilicus after application of breast milk to the umbilical cord. And when these two groups are compared with its result revealed that there is significant difference in the mean value and standard deviation of breast milk application group and in control group and breast milk is very useful in early dryness, separation & detachment of the cord from the umbilicus.

3. Conclusion

Breast milk with its antimicrobial properties acts as a defensive agent protecting the cord

from getting infected as the newborn has no protective flora at birth. In addition to this breast milk is also having influence over falling of umbilical cord causing early separation thereby decreasing the exposure to environment resulting in less chances of infection. The purpose of the present study was to assess the effectiveness of breast milk application for early healing of the umbilical cord.

The quasi-experimental research design was used for the study, which consisted of two groups, breast milk application group and control group. Each group consisted of 45 samples, were selected on the basis of the sampling criteria set for the study. Pre-observation was done before intervention in both the groups, then after post intervention observation of the umbilical cord stump was done for signs of separation.

The content validity of tool was done, the pilot study was conducted on 10 samples and the feasibility of the study was established from Bharati hospital and somshekher hospital, miraj, conducted from 19/8/13 to 28/8/13.

Based on the objectives and the hypothesis the collected data was analyzed by using descriptive and inferential statistics. And the 'z' test was used to find the significance.

Statistically mean score findings showed that breast milk application is useful in early separation of the umbilical cord stump. And there is statistical significant difference in the breast milk application group and control group. Hence it is concluded that breast milk is the best and effective tropical agent in reducing timing of cord separation among newborn.

Implications

The findings of the present study have implications for nursing practice, nursing administration, nursing education and nursing research.

Nursing Practice

Today society demands a greater accountability and increase efficiency and effectiveness from the health care center. Nursing care is no more only task oriented, fragment care, but it demands a comprehensive and holistic care. A nurse is a member of the health team and has a unique function to perform for the client in an independent manner. Nurse is the most important member who is continuously with the patient since the time of the admission to discharge from the hospital. The findings of this study regarding effectiveness of breast milk application to the umbilical cord stump can make the health care workers, specially nurses and doctors aware of it.

And implementation of these methods of protocols so that it may be used by all for the benefit of neonates.

Various other modalities are present for early separation of the cord, like application of sterile water, triple dye, spirit, dry core care can be brought into practice for better neonatal outcomes in NICU, post neonatal wards.

There is need to implement the research findings in the clinical field, so as to avoid the gap between research studies and clinical practice.

Nursing Education

Education is the key to the development of excellence in nursing practice. Education faces tremendous challenge in keeping pace with the changes in nursing practice to maintain its high quality.

The nursing curriculum can include the utilization of the different modalities for early separation of the umbilical cord stump of the newborns like breast milk which is easy available, cheap, free and contains immunoglobins.

Nursing Education-

Bed side nursing is a best opportunity to nurse to render her service to the community. Nurse uses her potentials to uplift the society within available

resources. As mothers milk contains immunity she can use this for different infections. Nursing personal working in NICU, post-natal wards can be given in service education related the utilization of these modalities for early separation of the umbilical cord stump of the newborns to update and improve their knowledge, and skills related advance practices.

Nursing Administration

Our rapid changing world made necessary for us as nurses to increase our knowledge and skill concerning many aspects of child care. We must not only keep abreast of scientific and technological advances in health field of developed countries, and also in the developing countries.

The study has important implication for the nursing administration. The overall nursing responsibility is the quality nursing care, The nurse administrator at various level can play a vital role to make this intervention of application of breast milk to the umbilical cord for early separation as routine in day to day care of newborn and can enhance the nurses knowledge through in service education and by providing sterile articles and enough equipments.

Nursing Research

No profession can exist without research to develop its body of knowledge to test its strategies. The health care environment today is dynamic and more demanding. There is need to promote research based practice and the use of evaluation methods to measure outcome and document the quality and cost effective care as nursing moves towards an independent professional practice mode.

Further researches can be done by using different modalities based on present research finding will help to develop nursing knowledge and up liftment of nursing profession.

Breast milk application is not widely used topically as a treatment anywhere on the body, now as it is proved that Breast milk

application helps in early separation of the cord stump will help to develop nursing knowledge and enlistment of nursing profession. It can be used as reference for the further studies and according to following recommendations one can go for one more study related to breast milk application on other infections like diaper rash, ophthalmic neonaturum or on skin rash.

Limitations:

1. This study is limited to newborns born through caesarean section.
2. Newborns of mothers who have undergone caesarean section and whose stay in the hospital is at least 8 days.
3. Mothers who are on antibiotics.

Recommendations

- Study can be replicated on large sample size with longer duration in different setting so that the findings can be generalized to large population.
- A similar study can be performed to assess the effect on various infections like diaper rash, ophthalmic neonaturum or skin rash.
- A comparative study can be done to assess the effectiveness of breast milk application on umbilical cord stump in low birth weight babies.
- The study can be replicated in different settings to strengthen the findings.
- A comparative study can be done to compare umbilical cord separation time between newborns delivered by normal delivery and LSCS.

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