



**Research Article**

**ASSESSMENT OF EFFECT OF TOPICAL APPLICATION OF BREASTMILK ON UMBILICAL CORD SEPARATION TIME AMONG NEWBORNS**

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**ABSTRACT**

**Introduction and background of the study** The fetus was connected to the mother through umbilical cord during intranatal life to get all the nourishment but, soon after delivery it gets separated and becomes prone to get microbial growth due to availability of open blood vessels in it. The natural drying of cord is costless but the expenses can be increased due to infection and medical care. There are several non pharmacological agents scientifically proven to be effective for the umbilical cord care and in reduction of umbilical cord separation time. The breastmilk is easy to use, readily available and inexpensive method of umbilical cord care which the mother herself can use for the newborn.

**Methodology** The post test only control group research design was used for the study. 80 newborns who were delivered normally at selected hospitals of Anand district, Gujarat were conveniently selected and then randomly allocated to experimental and control group (40 each). A validated data collection tool was used for both the groups. For the newborns of experimental group, breastmilk was topically applied over the umbilical cord stump until the cord fell off and for control group cord observation was done until the cord fell off.

**Results** There was statistically significant difference found among umbilical cord separation time among experimental and control group calculated by Mann Whitney test 92.5 at the p- value <0.001 level of significance. **Conclusion** Study concluded that there was significant difference between umbilical cord separation time among experimental and control group. Hence, the topical application of breastmilk showed significant effect on umbilical cord separation time and can be used as a convention method of cord care.

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**INTRODUCTION**

The umbilical cord serves as the only connection between fetus and mother for the growth and all the nourishment. Soon after the delivery cord gets cut down but still it is connected to infant's blood stream therefore it requires the special care.<sup>1</sup> The infection prevents or delays the vessels obliteration and thus lengthens the umbilical cord separation time.

Omphalitis can be defined as the pus discharge with erythema of the abdominal skin of severe redness at more than 2cm. extension from the cord stump with or without pus.<sup>2</sup> Cord infections and neonatal tetanus contribute significantly to high neonatal mortality rates in developing countries. These infections are preventable and can be reduced by practising clean delivery and clean cord care, by avoiding harmful practices<sup>3</sup>

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Data on the incidence of omphalitis in low-income countries is generally scarce; the available data estimate the risk to range between 2 and 77 per 1000 live births in hospital settings, with fatality rates of between 1% and 15% depending on the definition of omphalitis used. Community-based data show even higher infection rates for example, 105 per 1000 live births in Nepal, 217 per 1000 live births in Pakistan and about 197 per 1000 live births in India.<sup>1</sup>

As per the module given by WHO- division of reproductive health and family health for maternal and newborn health, safe motherhood documented that there is evidence that cord infections are common in developing countries.<sup>3</sup> One hospital study which is documented in the WHO- division of reproductive health and family health for maternal and newborn health, safe motherhood module found that, in 47% of infants hospitalized with sepsis, cord infection was the source of the illness, and that 21% of infants admitted for other reasons had omphalitis (cord infection).<sup>3</sup>

The natural cord drying is costless but expenses can be increased due to infections, expensive bacterial culture

examinations and medical treatment. Several agents including human breast milk are used for umbilical cord care and their effect on cord separation time has been examined. Breast milk is readily available, easy to use, and non invasive method for cord care. Human milk is a source of two classes of major growth factors, namely the transforming growth factors alpha and beta (TGF-A and TGF-B) and the insulin-like growth factors and (IGF-1 and IGF-2).<sup>4</sup>

WHO has included the topical application of breastmilk on umbilical cord of newborn as harmless practices as one study reported that KwaZulu-Natal and in some communities in Kenya, some women apply expressed breast milk (colostrum) to the cord stump (this could in fact be beneficial in view of the antibacterial factors present in breast milk).<sup>5</sup>

**MATERIAL AND METHODS**

A quantitative approach was used for the study. The quasi experimental post test only control group design was adopted to conduct the research study. The objectives of the study were to evaluate the effect of topical application of breastmilk on umbilical cord separation time and to determine association with neonatal variables and umbilical cord separation time The target population was newborns completed 37-42 weeks of gestational age and delivered through normal vaginal delivery with birth weight between 2.5 kg to 3.5 kg at selected hospitals of Anand district, Gujarat. Using non probability convenient sampling technique 80 newborns were selected and randomly allocated in experimental and control group (40 each). The data regarding neonatal variables were collected using the neonatal variable performa of both experimental and control group. Topical application of breastmilk was performed to the experimental group twice a day and umbilical cord was assessed daily using the umbilical cord separation performa while the umbilical cord observation done for the control group until the cord fell off.

Tool of data collection was consisting performa of observational checklist of neonatal variables and researcher developed umbilical cord separation observation tool.

**RESULT**

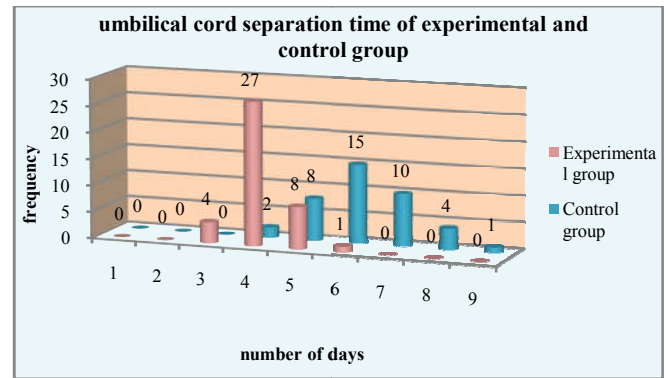
The data was analyzed using descriptive and inferential statistics. Mann Whitney test was used to determine the effect of topical application of breastmilk on umbilical cord separation time. Chi square test was used to analyze the association between selected neonatal variables and umbilical cord separation time.

**Table no. 1** Comparison of umbilical cord separation time of experimental and control group

Sr. No.	Days of umbilical cord separation	Experimental group (N=40)		Control group (N=40)		Mann Whitneyp- value test
		Frequency	Percentage	Frequency	Percentage	
1.	3	4	10	0	0	
2.	4	27	67.5	2	5	
3.	5	8	20	8	20	<0.001
4.	6	1	2.5	15	37.5	92.5 significant
5.	7	0	0	10	25	
6.	8	0	0	4	10	
7.	9	0	0	1	2.5	

The data presented in the table no. 1 indicates that there was statistically significant difference found in umbilical cord separation time among experimental and control group done

by Mann Whitney test 92.5 at the p- value <0.001 level of significance.



The study results showed the association between umbilical cord separation time and length of the newborns at birth among the experimental group ( $\chi^2= 11.704$ , df 3, p-value 0.007) at p-value less than 0.05 level of significance.

**CONCLUSION**

The study revealed about the topical application of breast milk reduces the umbilical cord separation time. The breast milk application can be used as non expensive, safe, easy to use and readily available method which the mothers themselves can use to reduce the umbilical cord separation time.

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