

Original Article

Alcohol Application Versus Natural Drying of Umbilical Cord

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ABSTRACT

Objective: To compare the outcome, between the application of Alcohol and natural drying to umbilical stump in low risk newborns.

Design, place and duration of study: This quasi-experimental, comparative study was carried out in departments of pediatrics, Military Hospital and Combined Military Hospital Rawalpindi over a period of six months.

Subjects and methods: Newborns delivered in Military Hospital and Combined Military Hospital Rawalpindi were randomized into group A (70% Alcohol) and group B (No antiseptic). In group A, 70% Alcohol was applied once daily to the umbilical stump, whereas no antiseptic was applied in group B. These newborns were followed till four weeks of life. Age at separation of umbilical cord was noted. Cases showing signs of neonatal sepsis and omphalitis were documented.

Results: Of 100 singleton full-term newborns enrolled, 90 completed the study. No newborn in either group developed a cord infection or neonatal sepsis. The difference of cord separation time between the two groups was statistically significant.

Conclusion: Evidence does not support continued use of alcohol for low risk newborn cord care. (Rawal Med J 2006;31:58-60)

Keywords: Newborns, umbilical stump care, 70% alcohol

INTRODUCTION

The umbilical stump is a common route of entry for systemic infection in the newborn infant. The newborn has no protective flora at birth. Normal skin flora begins to be acquired within 24 hours. The umbilicus is colonized by bacteria from environmental sources such as the mother's vagina, her skin flora and the hands of attendants.¹ Separation of the umbilical cord stump is mediated by inflammation at junction of the cord and skin of the abdomen with leucocyte infiltration and subsequent digestion of the cord. The cord normally falls off between 5 and 15 days after birth. Factors that delay the process are the application of antiseptics to the stump, infection and caesarean section.¹

Delayed cord separation with antiseptics may be due to destruction of the normal flora around the umbilicus (navel) and a subsequent decrease in the number of leucocytes attracted to the cord. Good cord care at birth and in the postnatal period is effective in preventing infections like neonatal tetanus that might otherwise occur through umbilical cord.^{2,3,4-7} Routine application of topical antiseptic prevents morbidity and mortality significantly.⁵⁻⁷ Alcohol (70% ethanol or isopropanol) is one of the most commonly used topical antimicrobial. However, only doing clean cord care, in low risk newborns, could be cost effective. This study was aimed to compare the cord separation time and rate of infection, by use of alcohol versus natural drying of umbilical cord in low risk newborns.

MATERIALS AND METHODS

This study was carried out in Departments of Paediatrics, Military Hospital (MH) and Combined Military Hospital (CMH) Rawalpindi. Newborns delivered in MH and CMH were randomised into group A (70% Alcohol) and group B (No antiseptic). In group A, 70% Alcohol was applied once daily to the umbilical stump till three days after cord detachment. Group B, served as control, where no antiseptic was applied to the umbilical stump. Each group consisted of 50 neonates. Full term neonates, born in MH and CMH by uncomplicated spontaneous vertex delivery were included in the study. The exclusion criteria were maternal pyrexia (temperature more than 38°C) during labour, premature rupture of membrane for greater than 18 hours, low birth weight newborns (weight <2.5 Kg), newborns being given oral or systemic antibiotic, admission in nursery within 48 hours after birth and presence of open congenital anomalies in the newborn.

Parents were educated about symptoms of neonatal sepsis and omphalitis. They were asked to bring their newborn if they observed any of these symptoms. These newborns were followed up till four weeks of life along with weekly telephonic contact with the parents. Age at separation of umbilical cord was noted. Cases showing signs of neonatal sepsis and omphalitis were documented. Data was analysed using SPSS version 11.

RESULTS

Table: Age at separation of umbilical cord (N=90)

Age at separation of cord					
Group	Number of cases	Mean (Days)	Median (Days)	Range (Days)	Standard Deviation
Group A	47	7.64	8.00	10	2.390
Group B	43	9.35	9.00	11	2.506
Total	90	8.46	8.00	13	2.580

Of 100 singleton full-term newborns enrolled, 90 completed the study. No newborn in either group developed a cord infection or neonatal sepsis. Difference in cord separation time was statistically significant (table). The mean age at cord separation in Group A, was 1.71 days earlier than that in Group B. Mothers described similar comfort with cord care and relief with cord separation in both groups.

DISCUSSION

When umbilical cord is cut, the cord stump is suddenly deprived of its blood supply. The stump soon starts to dry and turns black and hard (dry gangrene). Drying and separation of the stump is facilitated by exposure

to air. The devitalised tissue of the cord stump can be an excellent medium for bacterial growth, especially if the stump is kept moist and unclean substances are applied to it. The umbilical vessels are still patent for a few days following birth, thus providing direct access to the bloodstream. Infections, including tetanus, are among the leading causes of neonatal mortality. Each year some 500 000 infants die of neonatal tetanus and a further 460 000 die as a consequence of severe bacterial infection. A substantial proportion of deaths from infection are due to cord infections. Among other factors implicated in neonatal sepsis and cord infections, harmful cord care practices are leading causes.^{1,3,4-7}

In this study, we found routine application of antiseptics for umbilical cord care in low risk newborns was not superior to clean cord care in preventing infections, as seen in studies from developed countries.^{6,8,9} This also showed that the post natal cord care in low risk newborns can be adequately done by observing simple and general methods of hygiene. There was delayed cord separation, with routine application of antiseptics, increasing parental anxiety. However, this may not hold true for high-risk newborns,¹⁰ who have known risk factors for developing neonatal infections. Our study did not evaluate the impact of similar practices in pre-term, sick newborns, babies born by caesarean section and those who are kept in neonatal intensive care units. Therefore, further studies are required to evaluate the guidelines for postnatal cord care in these high-

risk newborns. Some people think that it is obligatory to apply “something” to umbilical stump. In those areas, instead of harmful substances, it may be beneficial to advocate routine application of harmless material e.g. breast milk to umbilical cord.¹ Clean cord care practices are advocated to be the main focus of any clean delivery and cord care program.¹¹

In conclusion, evidence does not support continued use of alcohol for low risk newborn cord care. The cord should be kept dry and clean and nothing should be applied for its routine care. Health care providers should explain the normal process of cord separation and avoidance of harmful historic practices. All resources including print and electronic media should be utilized to educate the general population about clean cord practices.

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