

Use of Chlorhexidine on Umbilicus in Prevention of Neonatal Sepsis

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ABSTRACT

Objective: The main objective of the study is to analyse the use of chlorhexidine on umbilicus in prevention of neonatal sepsis.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Department of Obstetrics and Gynaecology, Lady Willingdon Hospital, Lahore during March 2020 till September 2020.

Materials and Methods: The data was collected through non-probability consecutive sampling technique. The data was collected from 100 infants. Arrangements with a grouping of 4.0% free chlorhexidine were set up by weakening 20% chlorhexidine digluconate to the proper fixation with cleaned water.

Results: The data was collected from 100 neonates. All the demographic values which include age, gender, gestational age and mode of delivery were calculated. According to baseline values the birth weight of chlorhexidine group was $1.87 \pm 0.463\text{kg}$ and dry cord group was $1.69 \pm 0.421\text{kg}$. All the values is present in table 01.

Conclusion: It is concluded that chlorhexidine umbilical cord care is more appropriate than the currently WHO recommended dry cord care.

Key Words: Chlorhexidine, Umbilicus, Neonatal Sepsis

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INTRODUCTION

Neonatal mortality is still high in Pakistan at 55 neonatal deaths per 1000 live births (DHS 2012–13). Each year, approximately 202,000 newborns die within 28 days of birth in Pakistan. Tainting of the umbilical line can prompt omphalitis, portrayed by discharge, stomach erythema, or expanding. Microorganisms can enter the circulatory system through the patent vessels of the recently sliced line and lead to fast death, even without obvious indications of rope infection¹. Sterile conveyance and postnatal-care rehearses are broadly elevated as significant intercessions to lessen danger of omphalitis and passing. There are not many explicit data, notwithstanding, on omphalitis rate and little proof for ideal rope care practices to forestall string diseases and mortality locally, so better examinations are desperately needed².

Examiners in clinic based examinations in agricultural nations have portrayed the attributes of omphalitis, and revealed a scope of occurrence gauges (2–77 per 1000 medical clinic conceived newborn children). Locally, where irresistible test is higher and numerous cases go unrecognized, danger could be higher. An audit of omphalitis in Oman noticed that the occurrence rate in home-conveyed youngsters was occasions 5.8 higher than in clinic births. Local area based case-control examines have zeroed in on danger factors for neonatal lockjaw, and give some proof that effective cleaning agents on the string are protective³. In settings where neonatal lockjaw has been killed yet unhygienic string rehearses keep on putting infants in danger, effective germ-killers may ensure against infection⁴.

In the agricultural nations, where incompetent and unhygienic neonatal care rehearses are normal, there is a consistent prerequisite of reasonable and safe local area based mediations with demonstrated adequacy to forestall contamination in babies. Since umbilical stump diseases may quickly advance to foundational sepsis, ideal line care is particularly significant in anticipation of neonatal sepsis. Without adequate proof preferring job of effective anti-microbials in counteraction of sepsis, dry rope care is for the most part suggested. Chlorhexidine effective application on string stump has been appeared to diminish umbilical colonization, umbilical sepsis and consequently potentially foundational sepsis⁵.

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MATERIALS AND METHODS

This cross sectional study was conducted in Lady Willingdon Hospital, Lahore during March 2020 till September 2020. The data was collected through non-probability consecutive sampling technique. The data was collected from 100 infants. Arrangements with a grouping of 4.0% free chlorhexidine were set up by weakening 20% chlorhexidine digluconate to the proper fixation with cleaned water. The cleanser and water purifying arrangement was set up by weakening Ivory Liqui-Gel, a gentle purging specialist reasonable for infant skin, with filtered water. In groups relegated to chlorhexidine or cleanser and water purging, guardians got instructive messages about clean rope care and line purifying with the allocated arrangement at each visit inside the initial 10 days of life. Subsequent to washing their hands with cleanser and water, the specialist dampened a cotton ball with arrangement and tenderly spotted the umbilical rope stump. Data were additionally gathered on birth history, parental proficiency, and occupation. The essential results for the line purifying intercession study were occurrence of neonatal omphalitis and neonatal mortality.

Statistical analysis: The data was collected and analysed using SPSS version 19. All the values were expressed in mean and standard deviation.

RESULTS

The data was collected from 100 neonates. All the demographic values which include age, gender, gestational age and mode of delivery were calculated. According to baseline values the birth weight of chlorhexidine group was 1.87 ± 0.463 kg and dry cord group was 1.69 ± 0.421 kg. All the values is present in table 1.

Table No.1: Baseline characteristics of selected patients

Parameter	Group I Chlorhexi- dine group	Group II Dry cord care group
Neonatal parameters		
Birth weight (kg)	1.87 ± 0.463	1.69 ± 0.421
Period of gestation (weeks)	32.35 ± 1.64	33.87 ± 1.81
Male/female	23/27	39/11
Cesarean delivery	49	51
Premature rupture of membranes	13	25
UTI	0	1
Fever in last trimester	2	3

Table 02 shows the comparison of outcomes of group I and group II. Time of cord separation in group I is 7.82 ± 2.67 and 10.31 ± 3.23 in group II. Umbilical sepsis is

observed in only 1 patient in group I and in 3 patients in group II. Only single mortality was observed in group I and in 6 neonates in group II.

Table No.2: Comparison of outcome parameters

Parameter	Group I	Group II	p value
Time of cord separation (days)	7.82 ± 2.67	10.31 ± 3.23	0.02
Umbilical sepsis	1	3	–
Probable sepsis	20	5	0.043
Culture-proven sepsis	2	15	0.001
Meningitis	1	16	0.060
Duration of antibiotics received (days)	8.67 ± 5.61	13.1 ± 6.78	0.04
Duration of hospital stay (days)	11.4 ± 5.16	14.7 ± 6.62	0.04
All cause mortality	1	6	0.03

DISCUSSION

Our discoveries propose the part of chlorhexidine neighborhood application as a straightforward, reasonable and effectively accessible mediation for counteraction of culture-demonstrated neonatal sepsis in an asset helpless setting; nonetheless, slight alert is prompted while summing up our outcome to the populace at large⁶. The subjects in our investigation were conveyed and overseen at a tertiary care reference setting with a recognized setting of microbiological verdure, openings to intercessions, accessibility of types of gear, techniques and conventions, significantly unique in relation to a typical local area neonatal care setting⁷.

In Germany, Kapellen et al. directed randomized controlled investigation to think about adequacy and security of chlorhexidine (CX) powder versus dry care (DC) in umbilical rope care of infant. The noticed string partition time was (mean \pm SD) 7.0 ± 2.5 (territory 2.5–18.9) days in CX-treated youngsters and 7.8 ± 2.9 (territory 2.2–20.7) days in DC ($p < 0.001$). The mean distinction between the two treatment bunches was 18.9 h⁸. In an emergency clinic based examination from New Zealand assessing the effect of day by day rope purifying in 234 children, it was seen that string detachment happened at a mean of 10 days with Iodosan and 20 days with chlorhexidine. Meberg et al. (1990) saw that partition of the umbilical line happened altogether later in the hydrophobic material gathering than in the chlorhexidine–ethanol gathering (6.2 ± 2.2 versus 5.8 ± 2.1 days). Bhutta et al. (2010), in an

enormous local area based bunch randomized controlled preliminary, announced the mean line partition time as 7 days in chlorhexidine group⁹⁻¹².

CONCLUSION

It is concluded that chlorhexidine umbilical cord care is more appropriate than the currently WHO recommended dry cord care. It is a basic do-capable mediation that could well add to diminishing neonatal sepsis, a significant supporter of neonatal mortality in our country. This modest and straightforward intercession can save countless infant lives in agricultural nations.

Author's Contribution:

Concept & Design of Study: Abdul Qayyum
 Drafting: Shumaila Asghar, Saiqa Yaseen
 Data Analysis: Irum Shahzadi
 Revisiting Critically: Abdul Qayyum, Shumaila Asghar
 Final Approval of version: Abdul Qayyum

Conflict of Interest: The study has no conflict of interest to declare by any author.

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