

Eye Care and Surma Use in Pakistani Neonates

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ABSTRACT

Objective: To document the methods of eye care and surma use in neonates.

Study Design: Prospective cross-sectional study

Place and Duration of Study: Fatima Memorial Hospital, Lahore Mayo Hospital Lahore and Sir Ganga Ram Hospital Lahore from 1st July 2020 to 31st December 2020.

Methodology: Two thousand two hundred and thirty seven females (mostly mothers and female attendants) during ward rounds and outpatient clinics. The socio-demographic data, frequency of different eye care practices and Surma use in neonates were recorded.

Results: Most participants aged between 20 to 40 years (70%), were urban (75.5%), and housewives (54%). Only 15% were illiterate, remaining having at least some schooling or more. 90% were married, though 52% (unmarried + married and no kid+ first-time mothers) did not have personal experience of baby care. Medical personnel had guided females and families in 49%. Of the counselling by relatives (15.2%), grandmothers were a common influence. For first eye care after birth, 67% would use clean water, 19.9% did not know, and 5.5% would use unsafe methods like antimicrobial agents or rose water. A majority (65%) of participants intended to use Surma, usually once a day, the commonest reason being beautification of eyes and face. There was no correlation between eye care method, use of Surma, and socio-demographics.

Conclusion: We should prioritize the educations of our medical personnel as well the whole families and community.

Key words: Neonates, Eye care, Surma

INTRODUCTION

Eye care has been an integral part of essential newborn care in World Health Organization (WHO) guidelines. But further details about the universal safe practices and methods are missing.¹ It has been advised to follow local guidelines, which are unfortunately lacking in many countries, including Pakistan. There may be individual hospital guidelines but lack widespread acceptance.

In addition to the lack of standard eye care practices, there is a common tradition of Surma use (also known as Kajal, Kohl, al-kahal, tiro, or kwalli in different languages) in Pakistan, cultures and religions. It is used in many countries, cultures, and religious groups, for newborns as well as adult females and males (Afghanistan, Pukhtoons etc). Surma use is an ancient practice, dating to Egyptian pharaohs, having eyes with Kohl linings.² It is a common cosmetic (eyeliner), with additional cited advantages such as improving vision and an antimicrobial for eyes and umbilicus of a newborn. In the last few decades, there have been rising concerns regarding high lead content in Surma products with potential lead toxicity.³⁻⁵

We did the study to document different methods of eye care, frequency and attitudes to the Surma use in neonates in our population, intending to devise culturally appropriate and safe eye care guidelines.

MATERIALS AND METHODS

This prospective cross-sectional study was done in 3 busy tertiary care centres of Lahore, Pakistan, namely Fatima Memorial Hospital, Mayo Hospital, and Sir Ganga Ram Hospital, over period of 6 months from 1st July 2020 to 31st December 2020. Interviews were conducted by doctors according to a formatted questionnaire during obstetric and neonatal ward rounds as well as in outpatient clinics. Mothers and female attendants (relatives or home helps) of the neonates were interviewed after verbal consent. Data was recorded for socio-demographics, practices for eye care and Surma use.

Non-probability convenient sampling was employed. The sample size was calculated with a confidence interval of 99% (z value=2.57), error of margin at 5%, and assumed prevalence of surma use at 60%. It was 640 for each hospital. SPSS 22 was used for description, analysis, and inference. The Chi-square test

was used to define any significant association between socio-demographic indices and eye care practices and Surma use.

RESULTS

Most of our participants (70%) were from 20-40 years of age. 84.6% had been educated to school or above level. Almost half of the participants (52% = unmarried, married with no kids and 1st-time mothers) had replied, reflecting the methods that were practised or taught at home. It is because there is no formal system of education of females about newborn care reflecting their observation of practices at home. Half of our participants were stay-home mothers. Common jobs in the remaining 36% of females were doctors, teachers, nurses, bank officers, workers in super-markets, beauticians, and housemaids. Most (75%) of our interviewees came from Lahore (an urban area), the second-largest city in Pakistan (Table 1).

The commonest practise of cleaning the eyes of the baby after birth had been the use of water (67%) with cloth or tissue papers. Around 20% either did not know about the appropriate method to clean eyes or thought it unimportant. However, 5% used unsafe materials to clean eyes such as antimicrobials (over the counter) and rose water (poor quality control). Polyfax eye ointment was one of the popular antimicrobials which contain polymyxin sulphate and bacitracin zinc. Subsequent cleaning and care of the eyes were predominated by the use of clean water and surma. Two third of our participants (65%) intended to use or were using Surma, usually once a day. The three most frequent causes for use of Surma had been the beautification of eyes and face, its ability to improve vision, and its role in making eyes bigger in size. Nobody mentioned any side effects of surma use. 34% would not use it or were unsure but mostly because they were afraid to apply it in their eyes. Regarding eye care advice sources, almost half of the females (48%) followed the advice of their family physicians or nurses (in the delivery room or obstetric wards). About 33% said that nobody has counselled them regarding eye care. Another 15% mentioned advice by relatives, of which, grandmothers especially maternal grandmothers were a common influence. None of the participants was aware of the source of surma. Most have purchased it from commercial preparations. Some had bought kohl stone (galena) mostly from Makkah or Medina during Hajj. We calculated the p-value for associations between the method of

initial eye care (dividing into safe, unsafe or do not know categories) and surma use with age, address, marital status, parity, education, occupation, and personnel who taught them. We did not find any significant correlation (Table 2).

Table 1: Demographic information of the participants (n=2237)

Variable	No.	%
Age (years)		
<20	232	10.37
21-30	958	42.83
31-40	627	28.03
>40	420	18.78
Educational status		
No formal education	342	15.3
10 or fewer years (school)	1033	46.2
>10 years (college & above)	861	38.5
Marital Status		
Unmarried	226	10.10
Married but no kid	376	16.81
Married with 1st Kid	557	24.90
Married and 2 or more kids	1078	48.19
Residence		
Urban	1690	75.55
Villages	547	24.45
Occupation		
Housewife	1207	53.96
Jobs	826	36.92
Completing Education	204	9.12

Table 2: Attitudes about eye care in newborns

Variable	No.	%
Source of knowledge about eye care (2237)		
Doctor / Nurse / Midwife	1098	49.08
Nobody / Do not know	749	33.50
Relatives	341	15.24
Read about it / Internet	49	2.19
First cleaning of eyes (2237)		
Clean Water with cotton or cloth	1502	67.14
Do not know	242	10.82
No need	204	9.12
Normal saline	90	4.02
Antibacterial drops	73	3.26
Rosewater	62	2.77
Dry cloth or cotton or tissue	48	2.15
Alcohol wipes	16	0.72
Subsequent use (Multiple answers) [Out of 3568]		
Clean water with cotton or cloth	1578	44.23
Surma	1456	40.81
Antibacterial drops/creams	300	8.41
Rose water	178	4.99
Normal Saline	56	1.57
Intention to use Surma (2237)		
Yes	1456	65.09
No	687	30.71
Do not know	94	4.20
No. of surma applications (Out of 1456 yes answers)		
1 time a day	939	64.49
2 times a day	342	23.49
3 or more times	175	12.02
Why use Surma (multiple answers for 1456 yes) (Total 2198)		
Beautifies eyes	954	43.40
Improves vision	493	22.43
Makes eyes bigger in size	356	16.20
Prevents eye ailments	184	8.37
Keeps eye clean and safe	133	6.05
Prevents evil-eye	78	3.55

DISCUSSION

After birth, eyes are wiped clean for every neonate. It is so common, but no literature exists about the standardization of this essential process. Ours is the first multi-centre study of its kind in Pakistan, to the best of the author's knowledge that has attempted to document different eye care practices. Traditionally water is used to clean eyes and our study reconfirms it with 70% of participants. This number has been higher (84%) in another study from Pakistan(6). Ours being likely a hospital-based study, normal saline use was advocated with higher frequency as compared to community studies. Our standard recommendation for all 3 hospitals had been clean water for initial eye care.

This study however documents the use of a wide range of substances for subsequent eye care in the neonatal period. Especially concerning is the use of antimicrobials, mostly acquired over-the-counter, without any prescription. Mothers or relatives remembered the

names of eye drops that has been prescribed for eye infection in a family member and decided to use without any medical consultation. It indicates the failure of our counselling and emphasizes the need to strongly discourage parents and families from the indiscriminate use of antibiotics.

Surma use is a cultural tradition in Pakistan, especially strong in rural areas and tribal areas bordering Afghanistan. In our study, which is predominantly urban, the Surma use is prevalent, irrespective of age, marital status, parity, education, location, and occupation of participants. The practice is based on cultural, religious, and family traditions, which are propagated strongly by close relatives, especially grandmothers. Such influence by close relatives is a well-documented fact from other parts of the world as well.^{7,8} It highlights the importance of counselling whole families to propagate safe newborn care practices.

Surma is used in many countries and cultures such as Saudi Arabia, the United Arab Emirates, other Arabic countries, India, Bangladesh, Afghanistan, and some African countries. Traditional original Surma contained antimony sulphide which has antimicrobial action. It was ground and mixed with various vegetable oils and ash (in a few areas). Over time, ground galena stone replaced the earlier version. Galena stones contain lead sulphide.^{3,5,9} Studies analysing different surma preparations have been done in various countries in the last few decades. Lead content could be as high as 85.5%.^{4,10} Lead in surma is not known to enter the blood via eyes but is ingested with contamination of hands of babies during rubbing of eyes. Continued ingestion can lead to chronic lead poisoning in babies as well as in adults. High levels of lead were found in nails of pregnant women and cord blood of fetuses in mothers using surma for a long time.^{6,11,12} Chronic lead poisoning can present with chronic anaemia, poor growth, abnormal IQ, abdominal pains, and irritability. In severe cases, it may cause seizures and death.

The widespread use of surma, without significant association to any of the socio-demographic sub-groups, underlies the extent of the practice. Interestingly, during the discussions in our unit, many of the doctors were not aware of the origin, contents, or safety of the use of available Surma products. These facts emphasize the need to improve and strengthen counselling of safe practices to all levels of the community.

Advocating the use of clean water for initial and subsequent eye care is straightforward. Counselling against the use of antimicrobials is also logical. But guidelines for or against surma use is a different matter, owing to its roots in tradition, culture, and religion. One may argue for its occasional use. But it would need another study to check that if an occasional application (e.g., Once daily) of current surma products can cause lead toxicity or not.

CONCLUSION

The population and families in general and medical practitioners in particular, should be educated about safe eye care practices.

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