

Original Research Article

Risk factors of pthalmia neonatorum in newborns at Ardabil city

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ABSTRACT

Background: The term ophthalmia neonatorum (ON) connotes infection of the ocular surface within the first month of life which have many risk factors. The severity of this infection varies from mild to server and even corneal perforation, panophthalmitis and blindness. The objective of this study was to determine the risk factors of ON in newborns at Ardabil city.

Methods: this study is a descriptive cross - sectional study that was done on 40 newborns with ON at Ardabil hospitals. Data collected by visit of newborns and completed cheklists then by statistical methods in SPSS.19.

Results: The mean age in infant was 9 ± 8.1 day and the mean age of mothers was 26.4 ± 5.1 ; and the mean birth weight was 2597 ± 658.6 . 27 (67.5%) of infants were male and others were female. 23 (57.5%) of infant mothers had vaginal delivery and 8(20%) of infants have Prom. 24 (60%) of infants were in the first parite. Cojunctivitis was involved in 15 (37.5%) in right side, 5 (12.5%) in left side and 20 (20%) were bilateral. 25 (62.5%) of infants were term and 15 (37.5%) were preterm. 21(52.5%) of infants had history of UTI and genital infection in their mothers.

Conclusions: This study showed that ophthalmia neonatoroum is a multifactorial and multilevel problem and many factors have main role in this problem and doing future studies to recognize these risk factors is necessary.

Keywords: Ardabil, Conjunctivitis, Ophthalmia neonatorum, Risk factors

INTRODUCTION

Ophthalmia neonatorum or neonatal conjunctivitis is inflammation of the conjunctiva which occur in the first four weeks of newborns life with the prevalence between 0.14% to 19% in the world.¹ This infection in newborns can be varied from a slight swelling has a low discharge to systemic infections and associated with corneal ulceration, blindness and irreversible damage to the visual system of infants. Clinical protests of these infections have been reported in many parts of the world.² The onset and severity of these infections is affected by many factors including the type of microorganisms conjunctivit.³

There are many risk factors for ON such as insufficient prophelaxia, extra-prophelaxia and Prom, STD history, UTI in mothers, delivery type, infection amniotic fluid and pregnancy age <34 week.⁴ In a study, rate of ON in boys was more prevalent than girls.⁵ ON remains a significant cause of ocular morbidity, blindness and even death in underdeveloped countries and also it is one of the most common infections occurring in the first month of life that its risk factors should be work up emediatly.⁶

According to ophthalmia neonatorum side-effects such as risk of blindness, endophthalmitis and irreversible damage to the visual system and also given that lack of many studies in our country about ophthalmia

neonatorum prevalence and risk-factors, the aim of this study was to investigate the prevalence of ophthalmia neonatorum and its risk factors in Ardabil newborns.

METHODS

This is a cross-sectional descriptive study was conducted on 40 newborns with ON. All of hospitalized newborns in first 28 day of birth visited by pediatricians and ophthalmologists and necessary information included gender, age, diagnosis, referrals to the ophthalmologist, results of eye swabs, and outcome gathered by a checklist and then the completed data analyzed by statistical methods in SPSS.16.

RESULTS

Table 1: Demographic and characterised variables in new-borns.

Variables	n	%
Age range (days)		
1-10	30	75
11-20	6	15
21-28	4	10
Sex		
Girl	13	32.5
Boy	27	67.5
Apgar score		
Normal	25	62.5
low	15	37.5
Response to treatment		
Complete	29	72.5
incomplete	11	27.5
Parite		
1	24	60
2	12	30
3 and more	4	10
Delivery		
Vaginal	25	62.5
CS	15	37.5
Aminutic in mothers		
Normal	20	50
Oligohydroaminus	15	37.5
polyhydroaminus	5	12.5
Weight		
VLBW	2	5
LBW	19	47.5
NBW	18	45
HBW	1	2.5
Used drugs		
Solfactamid+eritromicine	21	52.5
Erytromicine	16	45
Solfactamid	1	2.5
Solfactamid+tetracycline	2	5

The mean age of newborns was 9 day (1-28 days). The mean age of mothers was 26.4±5.1. Most of infection onset time in newborns was in 1-10 day after birth (n = 30.75%). 27 (67.5%) of newborns were boy and rest of them were girl with sex ratio boy to girl 2 to 1. 15 (37.5%) of newborns were preterm and 25 (62.5%) were term. 20 (50%) have conjunctivitis in two side and 15 (37.5%) in right side and 5 (12.5%) in left side. 8 (20%) have Prom and 8 (20%) have history of ON in one of family members. 30 (75%) of newborn mothers have delivery normal time and 10 (25%) have dystocia and prolonged (Table 1).

DISCUSSION

According to results, of all newborns 30 (75%) suffered to conjunctivitis in first 10 day and rest of them after 11 day which our study results are in line with a study done in England.²

Pascolini and et al in a study showed that most of serious infections are caused by *Neisseria gonorrhoeae* and *Chlamydia trachomatis*, leading to corneal damage, ulceration, perforation, and blindness.⁷

In Ochigbo and et al study, the prevalence of ophthalmia neonatorum between newborns was 1.1% that most of them were girls (58.8%) and the result of this study Not consistent with our study results which most of newborns were boy (67.5%).

Also most of the newborns with ON in Ochigbo study were in age group less than 7 day which was similar to our study results that most of newborns were in less than 10 day.⁸ Of all samples, 67.5% were boy and rest of them was girls. In Dennering study in 1998, this infection in boys was prevalent than girls also in Shiraz study, 60% were boy and conjunctivitis in boys was prevalent but the relation between sex and occurrence infection no significant.^{5,9}

According to our study results, 50% of newborn mothers have normal amniotic liquid in pregnancy duration and 37.5% have Oligohydramnios and 12.5% polyhydramnios. Studies done by Isehbergand in year 1998 declared that Chorioamnionitis as an important risk factors of ON and clinical protests conjunctivitis from the infection amniotic fluid were reported in the early hours after birth.¹⁰ Matejcek in a study revealed that Adenovirus and Herpes simplex virus are the risk factors of ON which were not similar to our study results.¹⁰

Of all newborns, 19 (47.5%) were LBW, 45% NBW, 5% VBW and 2.5% HBW. In line with our study, the Shiraz study there wasn't any significant relation between weight at birth and ON.⁹

According the results of our study, 37.5% of newborns were pre-term and 62.5% were term. In dannering study there was a significant relation between infant birth age

and ophthalmia neonatorum but in Shiraz study this relation was significant.^{5,9}

According to our study results, 52% of newborns have history of UTI and genital infection in their mothers. Also in line with our study in Shiraz, there wasn't a significant relation between ON and UTI and genital infection.⁹ But in screening doing by WHO for pregnant women in 1990, women with STD history and genital herpes infection and women with History of burning and frequent urination and vaginal discharge considered as a high risk women in the society.¹ Dannering in a study showed that of all newborns with infected mothers to genital infection which not response to treatment about 30-40% change to Chlamydia ON and 20% change to Chlamydia pneumonia.⁵

In this study most of newborns delivered by NVD (62.5%) and since most organisms, especially Chlamydia trachomatis, a gonorrhea and herpes through the birth canal caused ophthalmia neonatorum, so having delivery in the form of NVD is a major risk factor for ON.¹ Hardy in a study reported that due to these infections, mothers with history of herpes genital infection should be cultivated during pregnancy and after positive result for this infection they should have C/S delivery.¹²

According to our study results, 72.5% of newborns have full response to treatment and 27.5% have relapse. In Shiraz study, most of newborns visited during 3-7 day after birth and most of them treated and rare of them until 28 day have redness or pus in the eyes.⁹

CONCLUSION

Results showed that ON are a multi-level and multi-factorial problem and many of factors have main role in its occurrence. Some of important effective factors on ON are vaginal delivery, prolonged delivery, parity and male gender of newborns that we can prevent the incidence of ON by prophylaxis and early treatment in high risk women. Given by risk of contaminations of ON to newborns, doing future studies in this topic in this area is necessary.

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