

THE FREQUENCY AND TYPE OF ORGANISM IN OPHTHALMIA NEONATORUM: A PROSPECTIVE STUDY IN SHIRAZ UNIVERSITY HOSPITALS IN 1992

Ophthalmia neonatorum (ON) is conjunctivitis occurring within the first four weeks of life.¹ The incidence of ON has changed recently, with *Chlamydia trachomatis* (10-43%) now being recognized as the leading cause of ON.² The other reported common causes include *Staphylococcus aureus* (5-27%), *Streptococcal* species, viridance group (1-29%), and *Hemophilus* species (5-14%). The purpose of this prospective study was to establish the most common causes of ON in our neonatal wards in Shiraz University hospitals.

During 1991-1992, all newborn babies with conjunctivitis admitted to neonatal wards were entered into the study. After history taking and physical examination, the results of Gram stains, Giemsa stains, cultures, and the effect of phototherapy on ON were recorded. Statistical analysis of data was done by Student's t-test and Pearson's chi-square test.

A total of 80 neonates had entered the study. The microorganisms isolated from these babies are shown in Table I. Staphylococci (*aureus* and *epidermidis*) were the most frequent etiologic agents, accounting for 16.2% and 13.3%, respectively. Prentice has found *Staph. aureus* in 8% and *Staph. epidermidis* in 21% of his series,³ assuming that *Staph. epidermidis* is part of the normal flora. But in the present study, 11 cases of *Staph. epidermidis*-positive cultures had conjunctivitis, with no other organism isolated. It seems that recently these organisms are being recognized increasingly as important nosocomial pathogens, particularly

in the neonatal age group.⁴ The overall percentage of bacterial ON in this study is 46.25%. Stenson et al. reported this ratio as approximately 40%.⁵ Gonococcal ON was found in only 3 cases (3.3%). Although the patients had few suggestive clinical symptoms, they responded successfully to topical chloramphenicol and intravenous penicillin. It has been shown that detection of gonococcal ON by smear is a sensitive and specific test with a 100% positive predictive value.⁶ In the United States, this incidence was 14.2% in 1976.⁷ *Chlamydia trachomatis* was not isolated from any patient in the present study. In contrast to studies of Prentice in 1977 (who also did not find any cases³), Sandstrom in 1988 recovered chlamydia in 20% of his 160 cases of ON.⁹ Although the McCoy cell culture system⁸ and immunofluorescent test have 90% and 96% sensitivity and specificity, respectively, for isolation of chlamydia, conjunctival scraping for cytologic examination can also be a specific and sensitive means of rapid evaluation of ON. Wincelous et al. have found this technique as being 100% sensitive in predicting chlamydial ophthalmia.⁶

This study revealed a sensitivity of 40.5%, a specificity of 76.5% and a positive predictive value of 65.2% and it showed that phototherapy (Table I) had no significant effect on ON ($p > 0.5$).

In the present study the uncertain group (including negative cultures and missed or lost ones) represented 49.5% of all cases of ON, which is nearly comparable with

Table I. Etiology of 80 cases of ophthalmia neonatorum and relation to phototherapy.

Microorganism	No (%) of babies	Before photo tx.	After photo tx.	No photo tx.
<i>Staph. aureus</i>	13(16.2%)	6	3	4
<i>Staph. epidermidis</i>	11(13.3%)	3	2	6
<i>Neisseria gonorrhoeae</i>	3(3.3%)	2	-	1
<i>Pseudomonas</i> sp.	5(6.3%)	1	1	3
<i>E. coli</i>	5(6.3%)	2	3	-
<i>Streptococcus</i> sp.	2(2.5%)	1	1	-
<i>Klebsiella</i>	1	-	1	-
Negative	31(38.3%)	11	7	13
Unknown	9(11.2)	-	3	6
Total	80(100)	26	21	33

Brief Communications

three other studies reporting 44.5%,⁷ 53.5%,³ and 31.5%.¹

S. POURARIAN, M.D.,

A. MADANI, M.D.

From the Neonatology Unit, Shiraz University of Medical Sciences, Shiraz, Islamic Republic of Iran.

REFERENCES

1. Jarvis VN, Leuine R, Asbell PA: Ophthalmia neonatorum, study of a decade of experience at the Mount Sinai Hospital. *Br J Ophthalmol* 71 (4): 295-300, 1987.
2. Holland GN: Infectious Diseases. In: Isenberg SJ, (ed.). *The Eye in Infancy*. Chicago: Year Book Medical Publishers, pp. 220-5, 1989.
3. Prentice MJ, Hutchinson GR, Taylor Robinson D: A microbiological study of neonatal conjunctivae and conjunctivitis. *Br J Ophthalmol* 61: 607-10, 1977.
4. St. Geme JW III, Harris MC: Coagulase-negative staphylococcal infection in the neonate. *Clinics in Perinatology* 18 (2): 281-297, 1991.
5. Stensen S, Newman R, Fedukowicz H: Conjunctivitis in the newborn: observations in the incidence, cause, and prophylaxis. *Ann Ophthalmol* 13: 329, 1981.
6. Wincelous J, et al: Diagnosis of ophthalmia neonatorum. *Br Med Clin Res* 28 (295): 1377-9, 1987.
7. Armstrong JH, Zacarias F, Rein MF: Ophthalmia neonatorum, a chart review. *Pediatrics* 57: 884-92, 1976.
8. Thygeson P, Stone W: Epidemiology of inclusion conjunctivitis. *Arch Ophthalmol* 27: 91-122, 1942.
9. Sandstrom I, Kallings I, Melen B: Neonatal chlamydia conjunctivitis. A long term follow-up study. *Acta Paediatr Scand* 77 (2): 207-213, 1988.