

Conclusion: The risk of ocular injury is higher in the young and active stage of life simply because individuals at such age engage in high-risk activities. Understanding the causes and local patterns of eye injuries is crucial in developing appropriate strategies for prevention and treatment. It is thus recommended that there should be extensive creation of awareness and health education of the public on the causes of eye injuries, as well as the safety and preventive measures.

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Conjunctival Microbial Flora and Antibiotic Sensitivity in Newborns at Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State

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Background: Micro-organisms are closely associated with the eye, forming the microbial flora of the ocular surface at birth while the inner parts of the eye remain sterile.¹ The eye is protected from invasion of these organisms by protective mechanisms on the ocular surface such as the continuous secretion of tear film containing bactericidal substances,¹⁻⁵ but any breach in the ocular surface from immunosuppression and/or trauma may predispose the eye to extraocular and/or intraocular infections.⁶ Normal ocular flora in babies is influenced by factors that differ in different individuals.⁷⁻¹² The study aimed to determine conjunctival microbial flora, organisms implicated in ophthalmia neonatorum, and antibiotic sensitivity in newborns at Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State, Nigeria.

Methods: A total of 301 babies were consecutively recruited within the first 48 hours of life and followed up till the end of the neonatal age. Neonates who were already on topical ocular antibiotic treatment before recruitment and those with congenital anomalies involving the eyes or face were excluded. An ocular examination was done for each baby and a conjunctival swab sample was taken from the right eye. The conjunctival swab samples were subsequently sent to the laboratory for microscopy, culture, and antibiotic sensitivity. Maternal socio-clinical data (age, education, occupation, mode of delivery, any infection treated close to delivery, duration of

labour) and the baby's data (sex, age at recruitment, gestational age at delivery) were recorded. The babies were followed up on the 5th, 7th, 14th, 21st and 28th days of life checking for the presence of any signs of ocular infection. If any of the signs were present, a detailed ocular examination was carried out and fresh conjunctival samples were taken for analysis.

Results: Culture-positive swabs were found in 167 babies (58.4%). The commonest Gram-negative isolate was *Klebsiella spp* (42/132; 31.8%), while the commonest Gram-positive isolate was *Staphylococcus aureus* (25/37; 67.6%) [Figure 1]. The spectrum of conjunctival flora was similar in babies delivered through the vaginal route and via Caesarean section ($p = 0.520$). Primary level of maternal education was significantly associated with the occurrence of multiple isolates ($p = 0.002$). The incidence of

ophthalmia neonatorum (defined by the presence of signs of ocular infection) was 7.3% (21/286). *Staphylococcus aureus* and *Klebsiella spp* (37.5% each) were the commonest causative agents for early onset ophthalmia neonatorum (onset within the first 72 hours of life), while *Citrobacter spp* was the commonest isolate in the later neonatal period (40%). Early onset ophthalmia neonatorum was found entirely among babies delivered via the vaginal route (Fisher's exact: 0.018). There was no significant relationship between the incidence of early onset ophthalmia neonatorum and the presence of local signs of maternal genital tract infection ($p = 0.302$). The isolates found in the ophthalmia neonatorum samples were significantly more likely to be the same organisms isolated in the affected babies at the time of recruitment ($p = 0.002$).

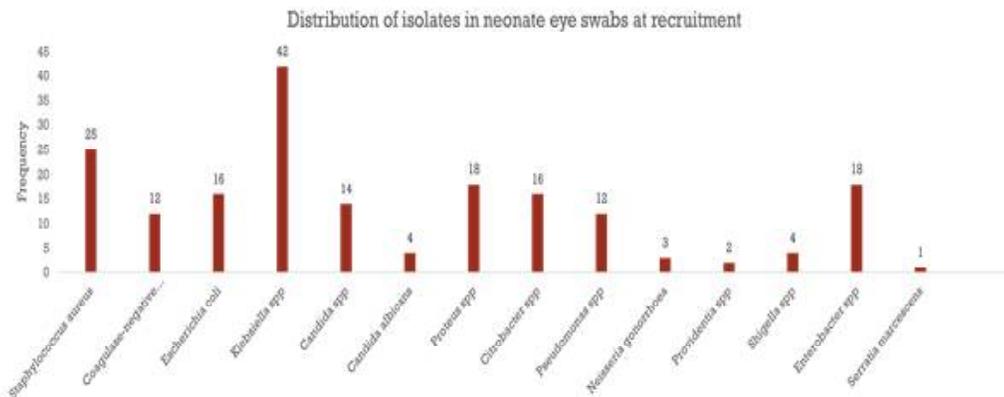


Figure 1: Distribution of Isolates in eye swabs at recruitment

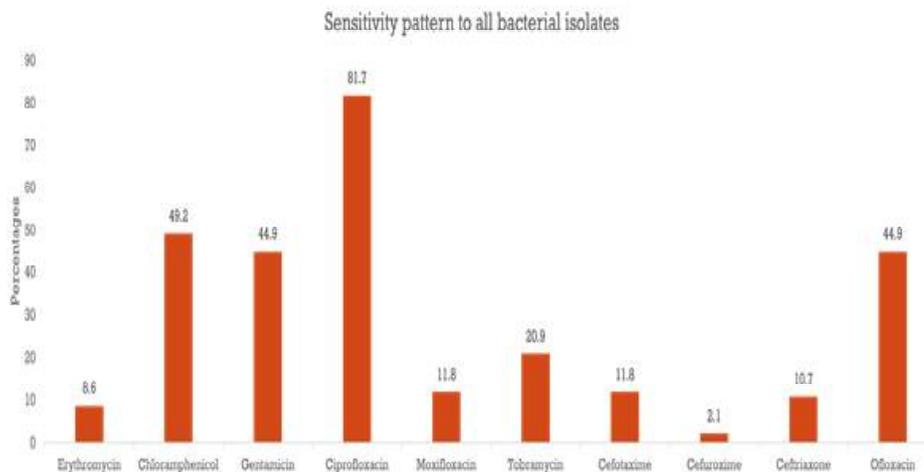


Figure 2: Sensitivity pattern to Bacterial Isolates at recruitment

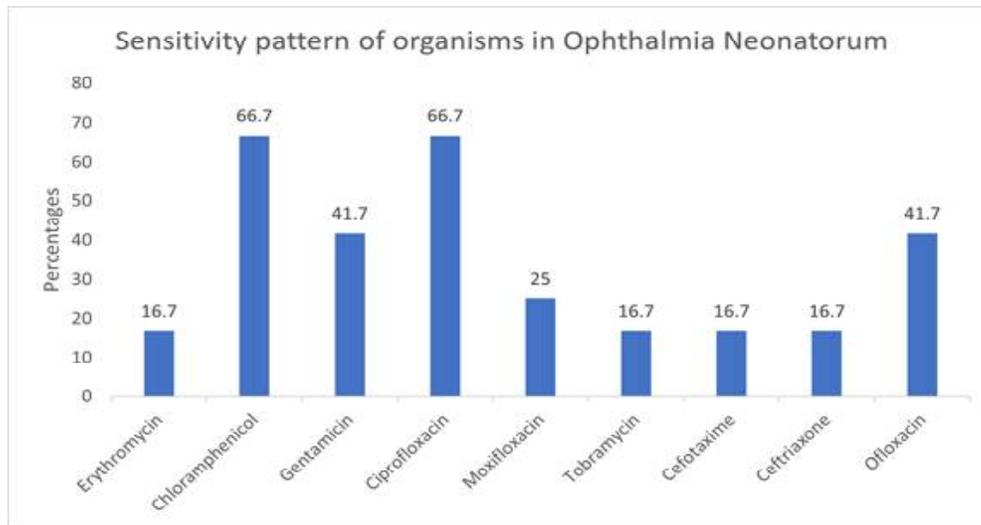


Figure 3: Sensitivity pattern to Bacterial Isolates from babies with ophthalmia neonatorum

Ciprofloxacin was the antibiotic with the highest efficacy overall (81.7%) [Figures 2 and 3].

Conclusion: The isolates found in babies with ophthalmia neonatorum correspond significantly with the microbial flora cultured at recruitment. *Staphylococcus aureus* and *Klebsiella spp* were the most common aetiologic agents in early onset ophthalmia neonatorum. Babies delivered through the vaginal route were more likely to develop early ophthalmia neonatorum than those delivered via the CS route. Ciprofloxacin was the antibiotic with the highest efficacy overall to the bacterial organisms isolated in the study.

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