Incidences of microorganisms isolated from neonates' eye swabs in Eastern Ontario

We read with interest the debate on whether the Canadian Paediatric Society should advocate rescinding neonatal ocular prophylaxis regulations.[1,2] Effective 2019, Ontarian parents may opt out mandatory prophylactic eye treatment to almost all newborns.[3] Nevertheless, not all clinicians and parents are well informed of the interpretation of *Neisseria gonorrhoeae* susceptibility result and incidences of microorganisms isolated from neonates' eyes.

Clinicians may be concerned about the 23% erythromycin resistance rate among the *N. gonorrhoeae* isolates tested in Winnipeg.[4] However, this resistance rate is for systemic rather than topical erythromycin, and not based on the Clinical Laboratory and Standard Institute (CLSI) interpretative criteria. CLSI provides no minimum inhibitory concentration breakpoints for topical antimicrobials, because drug concentration at target site is unpredictable. Topical therapy may enable targeted delivery of a high concentration of antimicrobial that overcome high minimum inhibitory concentration of microorganisms.[5] It may be premature to conclude that topical erythromycin offers no benefit in prevention of ophthalmia neonatorum.

Even if topical erythromycin is ineffective against *N. gonorrhoeae*, it may cover other pathogens known to cause ophthalmia neonatorum. Our Eastern Ontario Regional Laboratory Association, affiliated with 16 hospitals, retrospectively audited the microorganisms isolated from all neonates' (age <28 days) eye swabs from October 2, 2018, to October 2, 2019, (n = 52). We isolated at least 1 microorganism in 89% and multiple microorganisms in 42% of the swabs. The most common microorganism is coagulase-negative staphylococci (52%). Other microorganisms identified included *Streptococcus* species (33%), *Staphylococcus aureus* (6%), *Haemophilus influenzae* (10%), and other gram-negative bacilli (13%). *N. gonorrhoeae* was identified in one of these neonates' eye swabs, which was only 1 of 5 cases of gonococcal ophthalmia among children and adults in the same study period. No case of *Chlamydia trachomatis* ophthalmia was identified. Susceptibility testing was performed only on the *N. gonorrhoeae* isolate (penicillin intermediate; cefixime and ceftriaxone sensitive) because CLSI provides no interpretative criteria for topical antimicrobials.

Although incidences of gonococcal and chlamydia ophthalmia neonatorum appear to be in decline, this may be owing to clinicians not ordering the correct tests. Isolation of *N. gonorrhoeae* and *C. trachomatis* in eyes requires special transport and culture media.[6,7] Our laboratory would attempt to isolate *N. gonorrhoeae* in modified Thayer-Martin culture media only if patients are less than 1 week old or clinicians specifically requests this test; we would direct requests of *C. trachomatis* culture testing to public health laboratory only if specimen is collected in special transport media. In our audit, we noticed that clinicians have been ordering *N. gonorrhoeae* and *C. trachomatis* nucleic acid amplification tests on eye swabs, which are generally rejected owing to lack of validation in clinical diagnostic laboratory.[8] That might explain the low incidence rate of chlamydia and gonococcal ophthalmia neonatorum among the live births in Ontario.

We encourage Canadian researchers to publish local data on incidences of microorganisms isolated from neonates' eye swabs, which are scarce. The current published literature is insufficient to help clinicians and parents to make a well-informed decision. Until more data are available, we remain neutral on whether prophylactic erythromycin ocular ointment is warranted in newborns.

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Footnotes and Disclosure

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