

# Gonococcal and Chlamydia infections in children's and infant

Submitted: 02 June 2021; Accepted: 12 June 2021; Published online: 18 June 2021

## Perspective

Despite the fact that sexually transmitted infections like Chlamydia Trachomatis and Neisseria Gonorrhoea are more typically associated with sexually active adults and adolescents, the infection can also occur in infants and children. Pregnant moms can pass these infections to their babies after delivery, although infection in older children is mostly acquired by sexual assault. The high prevalence of perinatal *C. trachomatis* and gonococcal infections provides a variety of treatment options. The United States has employed neonatal ocular prophylaxis to prevent gonococcal ophthalmia neonatorum for more than a century. Prenatal screening and treatment of pregnant women, which has been demonstrated to be beneficial in avoiding neonatal gonococcal ophthalmia, appears to be equally effective in preventing neonatal Chlamydia infection.

Chlamydia vaginal infection has been reported in 5%-30% of pregnant women, with a 50% chance of vertical transmission to newborn offspring after parturition. The infant's conjunctivae, nasopharynx, rectum, and vagina can all become infected. Transmission is rare after caesarean delivery with intact membranes. Clinical conjunctivitis affects 30%-50% of newborns born to mothers who have an active, untreated Chlamydia infection. At least half of all babies with Chlamydia conjunctivitis have a nasopharyngeal infection. Pneumonia caused by Chlamydia trachomatis affects 10%-20% of infants born to mothers with an active, untreated Chlamydia infection. Pneumonia affects only around a fifth of babies with nasopharyngeal Chlamydia infection. Rectal and vaginal canal infections are asymptomatic. The discovery of Chlamydia infection in an older child suspected of sexual abuse could be problematic. Until the introduction of prenatal screening for *C. trachomatis* infection and treatment of pregnant women, *C. trachomatis* was probably the most common infectious cause of newborn conjunctivitis in the United States. The Centers for Disease Control and Prevention (CDC) first recommended *C. trachomatis* screening and treatment in the early 1980s. Monoculture methods for *C. trachomatis* identification, as well as the recommendation

Erica Bronen\*

Editorial Office, Clinical Investigation,  
London, UK

\*Author for correspondence:  
clinicalinvestigation@escienceopen.com

in 1993 to treat pregnant women with single-dose oral azithromycin, greatly enhanced the implementation of these recommendations. Since the widespread application of screening and treatment, the incidence of newborn conjunctivitis and pneumonia has decreased significantly. In nations where prenatal screening is not practised, *C. trachomatis* is nevertheless a prominent cause of conjunctivitis in newborns. *C. trachomatis* was shown to be the cause of 61% of newborn conjunctivitis in Rotterdam infants who visited a paediatric hospital and ophthalmologists. *C. trachomatis* infection is identified in 4% of pregnant women in that category; nevertheless, prenatal screening and treatment are not common in the Netherlands. Between July 2002 and December 2006, 17 cases of newborn conjunctivitis caused by *C. trachomatis* and one case caused by *N. gonorrhoea* were discovered in newborns presenting to a major regional teaching hospital in Ireland. Chlamydia ophthalmia was found to be 0.65 per 1000 live births, and it was found to be increasing year after year, paralleling the region's overall increase in genital Chlamydia infection. Prenatal testing and treatment for *C. trachomatis* and *N. gonorrhoea* are uncommon in Ireland. In Hong Kong, prenatal screening and therapy are not as common as they are in the Netherlands.

Because no new studies have been published in a decade, the CDC's treatment guidelines for Chlamydia and gonococcal infections in newborns have remained mostly unchanged since the prior edition. *C. trachomatis* and *N. gonorrhoea* infections are still best diagnosed by culture in newborns. Nucleic Acid Amplification Tests (NAATs) for the detection of *C. trachomatis* and *N. gonorrhoea* have largely superseded culture in many laboratories. The Food and Drug Administration has not yet approved any of the currently available NAATs for use in conjunctival or

nasopharyngeal tissues from newborns (FDA). According to data from two studies published in 1997 and 2008, Polymerase Chain Reaction (PCR) functioned far better than culture for detecting *C. trachomatis* in conjunctival tissues from neonates with conjunctivitis. Infants with *C. trachomatis* conjunctivitis usually have a significant number of organisms present, and getting a valid specimen is simple. Many previous antigen detection methods, such as DFA staining and enzyme immunoassay, worked well with conjunctival material, with sensitivities and specificities of 97%-98%. Nasopharyngeal specimens performed less well, most likely due to the lower number of organisms and variation in specimen collection. There is

no data on how effective NAATs are at detecting neonatal gonococcal ophthalmia. Other *Neisseria* species found in the conjunctiva, such as *N. cinerea*, *N. flavescens*, *N. lactamica*, *N. sicca*, and *N. subflava*, can be discovered by PCR and, to a lesser extent, strand displacement amplification. Oral erythromycin is still the recommended treatment for neonatal *C. trachomatis* conjunctivitis and pneumonia. Oral erythromycin has a 10%-20% failure rate, and some newborns require a second round of treatment. A three-day regimen of azithromycin (20 mg/kg/day orally twice daily for three days) was shown to be just as effective as 14 days of erythromycin in treating neonatal *Chlamydia* conjunctivitis in research.