

CHLAMYDIAL NEONATAL CONJUNCTIVITIS (CNCC) IN ILORIN, MIDDLE BELT OF NIGERIA.

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An increasing number of babies with conjunctivitis in our center what require an urgent evaluation was observed. To evaluate Chlamydial aetiology of Neonatal conjunctivitis in our environment all babies born in the University of Ilorin Teaching Hospital over a six months period were prospectively screened for Neonatal conjunctivitis using the Center for Disease Control/World Health Organization case definition for Neonatal conjunctivitis. All patients diagnosed to have Neonatal conjunctivitis had laboratory evaluation done to identify the causes. However only those from whom the inclusion bodies of chlamydia were seen got included in this study. An empirical treatment with 10% sodium sulphacetamide eye drops was given to all patients while other additional illnesses identified were managed in a standard way. Clinical re-evaluation was done by 72 hours and 7 days of treatment for clinical cure.

A total number of 112 babies developed neonatal conjunctivitis within the study period among the 852 babies screened and chlamydia was seen in 36 (32%). The hospital based incidence for Chlamydial neonatal conjunctivitis was 42 per thousand live births. There was a male preponderance. Gestational Age ranged between 27 weeks and 44 weeks though there were more term babies. Majority were delivered by spontaneous vertex. The Mean Age of on-set of disease was 5 days with a standard deviation of 3.8 days. Premature rupture of fetal membrane occurred in 1 (3%) case. Fifteen (42%) of 36 mothers had antenatal vaginal discharge. All mothers were married. Purulent eye discharge was the commonest clinical presentation and was sometimes unilateral. All babies responded well to treatment. No complication was observed in any baby. It was concluded that chlamydia trachomatis was the leading cause of neonatal conjunctivitis in our environment and the disease is of a remarkable magnitude requiring attention in our sub region. It has similar outlook with those reported from other regions of the World.

INTRODUCTION

Chlamydia is currently claimed to be the world leading cause of both neonatal and childhood conjunctivitis (1,2,3). This organism became significant after mid 20th century in the developed countries of the world and it gradually became the leading cause of conjunctivitis. However, no significant effort is being made in this sub region of Africa either to evaluate its incidence, mode of acquisition, pathogenesis or its epidemiology. WHO reported 7-29% prevalence of chlamydia vaginal infection among pregnant women and it is estimated that 30-40% of infants born mothers infected with chlamydia will develop conjunctivitis due to the organism (4,5,6). The prevalence of maternal genital infection in Africa ranges between 3-22% while the rate of maternal child transmission was 8.1% in most of the very few studies on neonatal conjunctivitis. Reports providing requisite data on chlamydia neonatal conjunctivitis are not common in Nigeria and the region of Africa. In this report, we present the result of an investigation of chlamydia neonatal conjunctivitis in Ilorin, middle belt zone of Nigeria as requisite information for future research.

MATERIAL AND METHODS

This prospective study was carried out in the University of Ilorin Teaching Hospital. The opportunity for this study was provided by a major and broader study on neonatal conjunctivitis when all babies born in the maternity wing of the hospital were screened. The appropriate hospital committee gave an ethical clearance and consent was

obtained from all mothers at onset of the study. This paper is therefore based on the patients in whom chlamydia was isolated from their conjunctiva scrapings.

Inclusion Criteria

Inclusion criterion was development of conjunctivitis within the neonatal period defined at first 30 days of life. Conjunctivitis was diagnosed based on WHO case definition (7): (a) presence of purulent eye discharge, (b) conjunctiva hyperaemia and (c) eyelid oedema. Among those who satisfy the selection criteria, laboratory evaluation for etiological diagnosis was carried out and those from whom chlamydia was isolated were studied.

Sample Collection

Palpebral conjunctiva scrapings were taken from all patients with conjunctivitis. Smears were then made on glass slides, fixed and transferred to the paediatric and child health research laboratory for giesma staining following the procedure described by Schacter (8). The staining procedure and identification of chlamydial inclusion bodies were pre-tested and perfected over a 3-month period pilot before the study.

Laboratory Method (8)

The smears were air-dried, fixed with absolute methanol for about 5 minutes, dried again under mild heat and then transferred to the paediatric research laboratory. It is then covered with a freshly prepared giesma stain for 1 hour, rinsed rapidly in 95% ethyl alcohol to remove dye, and to enhance differentiation. It is then dried and examined under the microscope for the presence of intra-cytoplasmic inclusion bodies: Elementary bodies (eb) stained reddish purple while initial bodies (ib) were more

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basophilic, staining bluish. No facilities for chlamydia immunological tests.

Treatment of patients

All patients received as empirical treatment, 10% solution of sodium sulphacetamide eye drops pending review of clinical status and laboratory results by 72 hours of therapy. Those who made clinical improvement were left on the same treatment for 7 days while those who showed no clinical response had their antibiotics changed to erythromycin.

Data handling and analysis

Data were checked for errors and omissions and subsequently entered into IBM-compatible microcomputer and then analyzed. Mean and standard deviation was done using Microsoft Excel software.

RESULTS

A total number of 112 babies developed neonatal conjunctivitis based on the case definition within the study period. However, chlamydia trachomatis was isolated from 36 infants which were included in the analysis. The rate at which each organism was identified as causing conjunctivitis in infants was as follow; Chlamydia trachomatis in 36 (32.1%), Staphylococcus aureus 15 (13.5%), Staphylococcus epidermidis 15 (13.5%), Coliform 12 (10.7%), Escherichia coli 12 (10.7%), Klebsiella spp 10 (8.9%), Pseudomonas aeruginosa 7 (8.9%), Streptococcus pneumoniae 2 (1.7%) and Streptococcus faecalis, Haemophilus influenzae and Neisseria gonorrhoeae were isolated in 1 (0.9%) case each. A total of 852 babies were born in the hospital within the study period, hence the incidence for chlamydia neonatal conjunctivitis (CNNC) was 42.3 per thousand live births.

For patients with CNNC, there were 21 (58.3%) males and 15 (41.7%) females. The term babies were 26 (72.2%) while 10 (27.8%) were preterm babies. Gestational Age ranged between 27 weeks and 44 weeks. Thirty-four (94.4%) babies were delivered by spontaneous vertex while 2 (5.6%) were delivered by Caesarian section. The Mean Age of on-set of disease was 5 days with a standard deviation of 3.8 days. The earliest was 3 days and the longest 28 days. Premature rupture of fetal membrane was present in 1 (2.8%) case and absent in the rest 35 (97.2%) babies. 15 (41.7%) of

mothers had antenatal vaginal discharge while 21 (58.3%) did not. All mothers were married. Five 5 (13.9%) were Primiparous 26 (72.2%), Multiparous and 5 (13.9%) were grand multiparous women.

Clinical presentation included purulent eye discharge, which may be mild, or moderate in severity in 36 (100%) of the babies and 32 (88.9%) had conjunctiva hyperemia. All babies responded well to treatment with 10% sulphacetamide eye drops. There was no complication observed in any baby.

DISCUSSIONS

Chlamydia Trachomatis accounted for about a third of all cases. This observation is in agreement with report from Kenya (9), the Gambia (10) and the United Kingdom (11), but at variance with report from Sweden where Staphylococcus species topped the list. Maternal genital infections rate during pregnancy may be responsible for this difference. CNNC cases appeared between 3-26 days with a mean of 5 days. There was male preponderance among those babies with conjunctivitis, which is in agreement with other reports (12,13). This could be due to the fact that more males were born during the study period (male: female ratio was 1.7: 1.0) and therefore it was more likely to affect male than females. Also, most of the preterm babies (> 70%) in this study were males. Preterms may need more aggressive resuscitation at birth than term babies thereby getting their eyes colonized earlier. Ages of onset was 5 days after birth (SD = 3.7) for chlamydial conjunctivitis. This was consistent with previous reports (14,15,16). Eye discharge was the most constant and most reliable clinical presentation. It was seen in all the patients diagnosed. Occasionally, it was the only criterion present for making a clinical diagnosis. This agrees with reported findings from Sweden (11) and USA (17). However, in this study no severe form was seen, C. trachomatis is known for its little or no eye discharge unlike N. gonorrhoea, which tends to present with severe purulent discharge.

Vaginal discharge was found in 15 (41.7%) of the mothers. The presence of discharge in mother may be regarded as evidence of maternal genital infection (though the specific type of infection still require evaluation). This study shows that most of the babies with CNNC were from mothers with antenatal vaginal discharge. Another report from our center showed that babies from mothers with antenatal vaginal

discharges were eight times ore likely to develop conjunctivitis (18). This was consistent with other previous reports (12). The presence of discharge increases the prosperity of getting infecting organism into the infant's conjunctiva especially during passage through the birth canal, where the number of organism can multiply rapidly. The proportion of the disease caused by *C. trachomatis* identified by this study strongly suggests that maternal genital tract infection with the organism is probably also very high. Hence, such National or Regional policy on prevention should include not only ocular prophylaxis for neonates, but also appropriate screening and treatment for mothers who may be infected with *Chlamydia* during the antenatal period. It is established that such mothers run the risk of developing complications like perihepatitis or pelvic inflammatory disease and consequently infertility (18).

This study showed that Neonatal conjunctivitis caused by *Chlamydia trachomatis* responded very well to 10% sulphacetamide ophthalmic drops. This is a significant finding because the drug is much cheaper than others and readily available in our environment. The outcome of this work carried out among a cohort of neonates delivered at the UIH shows clearly that Neonatal Conjunctivitis is still a serious problem in our zone of the country. We presume that our finding is probably an important (national) index of the extent of the problem, which calls for critical attention. Although the exact incidence of visual defects or impairments in the Nigerian Child is not known, the fact is that blind children and adults begging for alms on Nigeria streets is neither rare nor common. The role of *Chlamydia* neonatal conjunctivitis in addition to muscles, trachomatis, and vitamin A deficiency in causing visual disability among our children calls for attention. Because of the University proven efficacy of prophylaxis in preventing neonatal conjunctivitis and possible social and economic sequelae there is an urgent need to initiate and implement a National policy on ocular prophylaxis enforceable at the Regional and grass root level to stem down the disease (18).

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