Discussion

This study shows that one in three individuals attending a health centre in urban Kenya are HIV positive. Targeting VCT to clinical subgroups of individuals having past or present herpes zoster, past or present TB, oral thrush and prurigo would detect more than half of all these HIV-positive individuals.

Present or past history of herpes zoster and TB are easy to diagnose, as patients are often able to recall having had these two conditions. In particular, the scar of past herpes zoster can also be verified by physical examination, and it is often possible to confirm a history of TB through patient identification cards and the TB register. Oral thrush and prurigo can be detected by simple oral examination and inspection of the skin, respectively. Screening using such clinical markers should thus be feasible in health centres in Kenya where clinical acumen is often limited, staff are overworked and resources are limited.

The WHO has set an ambitious target of offering 3 million people ART by 2005.[8] This will invariably have to involve a scaling-up process involving simplification of HIV/AIDS interventions and eventual decentralization to the health centre level. Confirmed HIV-positive individuals who have clinical markers identified in this study would fall into WHO stages II–IV and would thus be eligible for cotrimoxazole prophylaxis,[10] isoniazid prophylaxis[7] and eventually ART.

In a resource-poor setting, introducing a clinical screening algorithm for HIV at the health centre level using four simple clinical markers could provide an opportunity for targeted VCT and early access to a range of prevention and care interventions.

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Efficacy of topical ophthalmic prophylaxis in prevention of ophthalmia neonatorum

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SUMMARY Ophthalmia neonatorum is a form of conjunctivitis occurring in infants younger than 4 weeks. It can be a leading cause of blindness in newborns. In this random clinical case–control study, ophthalmia neonatorum was investigated in one university centre. In this study, prophylactic effect of normal saline and ophthalmic erythromycin was compared with a group not receiving any prophylaxis. The first group received ophthalmic erythromycin ointment (0.5%), the second group were distilled one drop of normal saline into each eye, and the third group did not take any prophylaxis. Within the first 10 days of life, conjunctivitis developed in 138 newborns (13.8%). Of conjunctivitis cases, 29.7% were in erythromycin group, 31.9% in normal saline group and 38.4% were in no-prophylaxis group. In general, no significant difference was observed among the three groups ($P > 0.05$).

Introduction

Ophthalmia neonatorum is a form of conjunctivitis occurring in neonatal period. It is the most common cause of acute ophthalmic disease in newborns. The reported incidence of this disease varies, from 1.6% in USA to 23% over the world, and in some studies even 25.6%.[1–3] There have been many different aetiologic agents implicated that differ greatly in their virulence and clinical course.[4–8] The aetiologic agents include bacteria, viruses and chemical compounds. The most

severe type of ophthalmia neonatorum is gonococcal ones that may lead to blindness if diagnosis and treatment are attempted late.[4] Fortunately, however, incidence of this type of conjunctivitis continues to fall[4] and, in recent years, chlamydial conjunctivitis has been more common.[3,9] The best method of preventing neonatal chlamydial infection is prenatal screening and treatment of pregnant women. The following organisms are less common causes of conjunctivitis: streptococcus beta haemolytic groups A and B, pseudomonas, *Neisseria meningitidis*, *Corynebacterium diphtheriae*, *Cholesteridium* sp., *Herpes simplex*, Echovirus and Candida.[4–6]

Clinical signs and symptoms: regardless of its aetiology, ophthalmia neonatorum is characterized by redness, chemosis (swelling of the conjunctiva), oedema of the eyelids and discharge, which may be purulent.[4] Hyperaemia is the most frequent sign of conjunctivitis.[4]

In untreated cases, ophthalmia neonatorum is followed by some complications such as corneal ulcer, corneal perforation,[4,6] endophthalmitis and even blindness and also septicemia.[4,6] It seems that effective prophylaxis may reduce the above-mentioned complications.[4,5]

The first method of prophylaxis, silver nitrate solution, was described by Dr Crede, about 20 years ago. Instilled in the eyes of newborns, 2% silver nitrate solution reduced the incidence of gonococcal ophthalmia from 10% to 0.3%.[4] However, at present, silver nitrate is not used for the following reasons:

(1) developing chemical conjunctivitis;
(2) producing corneal lesion;
(3) ineffectiveness against prenatally acquired gonococcal conjunctivitis;
(4) Ineffectiveness against chlamydial and viral conjunctivitis.[4–6]

Other medications are topical antibiotics that are expensive but produce less irritability.[5] Ophthalmic tetracycline ointment, erythromycin 0.5% and povidone-idoine (2% solution) are in this group.[4–6]

These drugs do not have much effect in prevention of viral and chlamydial conjunctivitis and the best method in preventing that is the treatment of pregnant women.[4–6] So in some countries with a low incidence of gonococcal infection, prophylaxis is not recommended.[5]

Our main goal of this study is to determine efficacy of ophthalmic prophylaxis in preventing of ophthalmia neonatorum, as well as, comparing effect of normal saline and ophthalmic erythromycin ointment and also comparing these two drugs with control group.

Methods

This study was conducted in Najmieh Hospital through July to December 2001. We included 1002 healthy term newborns (weight over 2500 g and gestational age more than 37 weeks). These infants were classified into three groups. Selection of newborn for each group was done regardless of sex, kind of birth and exclusively done randomly.

Type of study was clinical trial, and sampling method was in census form. Immediately after birth, in the first group, ophthalmic erythromycin ointment (0.5%) was used for both eyes. In the other group, sterile normal saline, one drop into each eye was distilled, and the control group received no treatment.

A questionnaire was completed for each newborn by the nurse who had administered prophylactic medication. In this questionnaire, some information such as maternal age, weight and parity, newborn's birth weight, height and sex, type of delivery, premature rupture of membrane (PROM), date and time of taking prophylaxis and type of prophylaxis were recorded.

Discharge of newborn was carried out routinely, and the mother was instructed about conjunctivitis and its signs, and she was told to refer immediately if signs (secretion and redness) in newborn's eyes appears. If parents were suspicious that newborn was afflicted with conjunctivitis, they referred and, then, culture was done, and the result was recorded in the questionnaire.

Tenth day visit of newborn was mandatory to diagnose or rule out conjunctivitis.

At the end of study, the collected data were analysed in SPSS (Ver. 10) using χ^2 and one-way ANOVA tests for statistical studies.

Results

Total subjects included in this study were 1002 newborns: 523 (52.2%) were male, and 479 (47.8%) were female. Mean birth weight was 3253 ± 436 g, and mean height was 50 ± 2 cm. Mean age of mothers was 27.5 ± 5 years (minimum 17 and maximum 45 years), and mean maternal weight was 74.6 ± 11.7 kg. Ninety newborns (9.3%) had PROM.

Three hundred and twenty newborns (32.9%) were in group A (erythromycin), 337 newborns (33.6%) in group B (drug free) and 335 newborns (33.4%) in group C (normal saline).

In erythromycin group, 41 cases (29.07%) of conjunctivitis were observed. In drug-free group, 53 (38.4%) cases were observed, and in normal saline group, 44 cases (31.9%). Culture was performed for 111 newborns (11.1%), 91 cases (9.1%) were positive and 20 newborns (2%) negative. Greatest number negative cultures were in normal saline group and erythromycin group stood second.

There was no correlation between maternal age, parity, PROM and incidence of conjunctivitis. There was a significant correlation between type of delivery and conjunctivitis ($P = 0.000$); conjunctivitis incidence in caesarean section-delivered newborns was less. No significant difference was found between occurrence of conjunctivitis and type of prophylaxis. There were no significant differences between the three groups for occurrence of conjunctivitis.

Although it seems that therapeutical efficacy was greater in erythromycin group (41 affected newborns in this group versus 53 in drug-free groups), no statistically significant difference was observed.

Between erythromycin- and drug-free groups and also between normal saline and erythromycin groups no significant differences were observed. There was no case of severe sight-threatening or systemic disease in our cases on tenth-day visit and afterwards, in all groups. Causative organisms in this study were: Diphteroid and coagulase negative staphylococcus (the most common); Gram-negative bacilli; Gram-positive bacilli; *Escherichia coli*; enterobacter; coagulase positive staphylococci. No case of gonococcus was detected.

Discussion

Ophthalmia neonatorum is the most common cause of acute ophthalmic disease in newborn. Prevention of this disease may reduce its complications.[4,5,10]

In this study, ophthalmia neonatorum and effectiveness of ophthalmic prophylaxis in prevention of disease were investigated.

Prevalence of conjunctivitis was 13.8%, which is compatible with some of the world statistics but is less than the others (25.6%).[1,10]

There was no correlation between occurrence of conjunctivitis and maternal age, parity, neonate sex, PROM and birth weight. Presence of significant difference between type of delivery and conjunctivitis is indicative of the notion that the route of neonatal acquisition is vaginal delivery which is particularly important in chlamydial conjunctivitis, the most frequent type in recent years.[3,9]

We obtained 111 cultures from 138 cases of conjunctivitis. Ninety-one (82%) positive cultures and 20 (18%) negative cultures were reported. Negative cultures are less than in some studies,[1,3] but are similar with some others.[10] Causative organisms in this study are comparable with previous reports.[4–6] Culture was performed for 111 symptomatic newborns (11.1%). We saw 91 cases (9.1%) were positive and 20 newborns (2%) negative. The negative cases were less than the other studies.[2,9]

Conjunctivitis with negative culture may be chlamydial type (and viral), and negative cultures in our study were low. So prevalence of chlamydial conjunctivitis in our study is probably below global statistics.

Optimal prenatal care done in this centre can be considered as low frequency of chlamydial infection. Obviously, undiagnosed cases of chlamydial conjunctivitis had no influence on final results because the results have been obtained based on comparisons made among groups. We did not have any case of gonococcal conjunctivitis due to religious and current culture governing on our society, and also no case of systemic involvement suggesting chlamydial infection was seen.

There was no correlation between groups (two drugs with each other and each drug with the drug-free group and three groups with one another) and conjunctivitis. Although the number of affected newborns in erythromycin group was less, no statistically significant difference achieved.

In this study, we used normal saline as prophylactic agent so that environmental microorganisms are removed as possible.

Although there was no statistically significant difference between this group and control group, the frequency of conjunctivitis was likely to be lower in normal saline group; on the other hand, among subjects with negative cultures the greatest numbers were included in the normal saline group.

Considering the lower expense and lacking adverse effects of this agent, it seems that more effectiveness of this agent will be clarified in the future studies.

Taking into account the above-mentioned results as well as reasons given below, we see:

(1) ineffectiveness of prophylaxis in some previous studies;[6,9]
(2) absence of even one case of gonococcal conjunctivitis (due to religious and current culture governing on our society);
(3) ineffectiveness in prevention of chlamydial and viral conjunctivitis;[4–6]
(4) probability of emerging drug resistance.[5,6,11]

It seems that prophylactic therapy has nogreat contribution in preventing ophthalmia neonatorum.

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