AN EVALUATION OF TREATMENT IN GONOCOCCAL OPHTHALMIA NEONATORUM

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SYNOPSIS

A study was carried out to compare the effectiveness of treatment of gonococcal ophthalmia neonatorum with intensive local therapy (instillation of penicillin eye-drops) and treatment with local therapy plus systemic administration of penicillin. It was found that infection failed to clear in 18.75% of infants who were given local therapy alone. There was 100% cure in infants given the combined therapy. The authors reaffirmed the view that both local and systemic treatment should be given and that the mothers of all infected infants should also be treated.

INTRODUCTION

Between November 1975 and March 1978, an average of 30 cases of gonococcal ophthalmia neonatorum were seen annually in the Middle Road Hospital, which is the main centre for the treatment of skin and sexually transmitted diseases in Singapore (Middle Road Hospital, 1975-77). This represents approximately 0.07% of total births per year (Family Planning & Population Board, 1976). Most babies are delivered in government hospitals where the practice of Crede's method of instilling 1% silver nitrate solution to the baby's eyes at birth has been abandoned. When a baby is found to have discharge from the eyes a few days after birth in the hospital or during follow-up in the maternal and child health clinic, it is referred to this hospital for investigations and management. There are two popular methods of treating this condition, namely: local therapy with penicillin eye-drops alone and combined local and systemic penicillin therapy. In one venereology textbook it is mentioned that local therapy alone is adequate treatment and parenteral therapy is offered as an alternative only (King and Nicol, 1975). This is based on the observation and work of Sorsby from 1945 to 1950 (King, 1964). In recent years, more ophthalmologists and venereologists favour treatment with combined therapy. A study

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was therefore carried out in this hospital to compare the effectiveness of the two treatment schemes: (A) Local therapy with penicillin eye-drops alone; (B) Combined local and systemic penicillin therapy.

MATERIALS AND METHODS

Babies under 3 weeks old seen in this hospital for eye discharges were investigated routinely for gonococcal infection. Swabs were taken from both eyes and sent for Gram-staining and culture for N. gonorrhoea. Their mothers were also investigated by having their vaginal, cervical and urethral smears taken for bacteriological examinations. Presumptive diagnosis of gonococcal ophthalmia neonatorum was made on detection of Gram negative intracellular diplococci. The infected baby and its mother were then admitted into the ward for treatment. Babies admitted were allotted alternately one of the two treatment regimes described below:

(A) Intensive eye toilet. The eyes were swabbed with normal saline and following this, crystalline penicillin eye-drops (10,000 units per ml) were instilled into both eyes every 10 minutes in the first hour, every 30 minutes in the second, third and fourth hour, and thereafter hourly for 60 hours.

(B) Intensive Eye Toilet and Systemic Penicillin Therapy. Local treatment as described in (A) was given and at the same time, the baby was given intramuscular crystalline penicillin 100,000 units every 6 hours for 24 hours (i.e. a total of 400,000 units).

All the mothers were given intramuscular injections of 3 mega units of procaine penicillin and 1 gm of probenecid orally.

On the third day, the infants' eye swabs and their mothers' cervical and urethral swabs were taken for smears and cultures for N. gonorhoea. Those with negative smears were allowed to go home. Those with positive smears were given additional treatment and those whose cultures were found to be positive subsequently were readmitted for treatment again. Smears and cultures were repeated in the outpatient clinic when the patients were followed up at one and two weeks intervals.

RESULTS AND COMMENTS

The study was started in November 1975 and concluded in March 1978. 69 babies were presumptively diagnosed to be suffering from gonococcal ophthalmia neonatorum on the basis of positve smears and admitted for treatment. Of these, diagnosis was confirmed in 60 by positive culture results. With regard to the mothers of these 60 babies, 57 were found to have positive cervical cultures for Neisseria Gonorrhoea, the other 3 had been given ampicillin or other antibiotics for puerperal pyrexia - thus accounting for the negative culture results.

The results of treatment of the 60 babies are shown in this table.

	Number of neonates treated	Third Day After Treatment			
		Smears		Cultures	
		Positive	Negative	Positive	Negative
Local Therapy alone	32	4	28	6	26
Local & Systemic Therapy	28	0	28	0	28

Four infants who were given local therapy alone had positive smears at the end of 3rd day. They were given crystalline penicillin injections. Two infants had negative smears on the 3rd day but culture results were subsequently found to be positive. They were readmitted for treatment and were also given crystalline penicillin injections. All six were found to be clear of the infection on the 3rd day after the additional treatment.

All the infants given the combined therapy responded to treatment and their infections cleared up on the 3rd day.

All the 57 mothers responded well to treatment with intramuscular procaine penicillin and oral probenecid.

No relapses were found in mothers and babies during followups at one and two weeks intervals.

DISCUSSION

From the results, it is observed that 6 out of 32 (18.75%) neonates treated with local penicillin eye-drops alone were not cured of their infections. On the other hand, all of the 28 (100%) treated with combined local and parenteral therapy had their infections cleared. It is quite apparent, therefore, that local therapy alone is unsatisfactory in the treatment of gonococcal ophthalmia neonatorum. In Singapore, most of these cases are sent to this hospital for management where the standard treatment is combined local and systemic therapy. It is noted, however, that in some clinics and institutions in the Republic, infected neonates are treated with local penicillin eye-drops only, and that sometimes their mothers are not investigated. It has been shown that antibacterial eye-drops produce temporary alleviation of signs without eradicating the infection (Schofield

1971). This is evident in the two infants in this study, whose eye swabs smears were negative on the third day after treatment but cultures were found to be still positive. Chronic gonococcal conjunctivitis may lead to corneal ulceration which heals with scarring resulting in impairment of vision. There may even be perforation of the globe with loss of sight (Schofield 1975). Infections in asymptomatic mothers, if left untreated, may result in local pelvic or septicaemic complications. A new syndrome, related to neonatal oro-grastric contamination of N. gonorrhoea has also been described (Ris 1974). This condition is, of course, unaffected by local therapy to the eyes only. A case was seen recently in this hospital of a 6 months old baby who had intermittent eye discharges since birth. It had been treated with eye-drops only at the age of two weeks with improvement of signs. The mother had not been examined. On bacteriological examinations, both mother and child were found to have gonococcal infection. Fortunately, the child has no visual impairment but the mother had symptoms of chronic pelvic infections. The authors therefore reaffirm the view that combined local and parenteral penicillin therapy is the treatment of choice in gonococcal ophthalmia neonatorum, and that all mothers of infected neonates should be thoroughly investigated and treated.

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