AUREOMYCIN: A NEW TREATMENT FOR SYPHILIS?

BY

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Aureomycin, a yellowish crystalline substance prepared from *Streptomyces aureofaciens*, is dispensed in capsules containing 250 mg. of aureomycin hydrochloride and is administered by mouth. It has already been shown to be effective in rickettsial diseases such as Rocky Mountain fever (Ross *et al.*, 1948), in atypical pneumonia, in brucellosis (Spink *et al.*, 1948), and in certain eye conditions and urinary infections, as those due to *Aerobacter aerogenes* and *Streptococcus faecalis*, for which some consider that aureomycin is to be preferred to streptomycin and the sulphonamide group of drugs. It has considerable application to venereal disease. Finland *et al.* (1948) used it in 66 cases of gonorrhoea, with 49 definite and 11 doubtful successes and six failures. Improvement was noted in two cases of penicillin- and sulphonamide-resistant non-specific urethritis. It is also of value in granuloma inguinale (Greenblatt *et al.*, 1948). In addition, Wright *et al.* (1948a, 1948b) have shown that it is effective in the virus disease of lymphogranuloma venereum.

The following case reports indicate that this antibiotic also has a powerful action upon the organism of syphilis. The patients were Bantu negroes with early syphilis, in Southern Rhodesia, and in all of them *Treponema pallidum* was demonstrable before treatment. As the supplies of aureomycin available were scanty and the prospects of an adequate follow-up problematical, it was considered expedient to treat a number with small, probably subcurative doses and to observe the effect by subsequent dark-field examination.

Case Reports

Case 1 (Seronegative Primary Syphilis).—A native from Portuguese East Africa had a typical indurated penile primary chancre with firm rubbery non-tender inguinal glands. The Wassermann and Kahn blood reactions were negative, but a dark-field examination of material taken from the sore showed *T. pallidum*. On May 18, 1949, he was given three 250-mg. capsules of aureomycin (Lederle) at intervals during 24 hours. Twenty-four hours after the starting of treatment the dark field still showed *T. pallidum*, although with greater difficulty. At 48 and 72 hours, however, none were recovered: at this stage he was given a course of penicillin.

Case 2 (Seropositive Primary Syphilis).—A male negro from Portuguese East Africa presented an indurated fraenal ulcer with a developing left inguinal bubo. Clinically the case resembled a mixed infection of syphilis and chancroid, and, although the dmelcos and Frei skin tests were negative, Ducrey's bacillus was seen in smears from the sore. The dark field, however, showed *T. pallidum*, and the Wassermann and Kahn blood reactions were positive. He was given five capsules of aureomycin orally over 29 hours (total 1,250 mg.). Twenty-four hours after the onset of treatment *T. pallidum* was still isolated by dark field, but dark-field examinations performed daily for the next 16 days were all negative. By the end of this time the sore had healed and the bubo resolved without additional treatment.

Case 3 (Seropositive Primary Syphilis).—A male negro from Portuguese East Africa was admitted with a paraphimosis and an indurated fraenal sore with typical syphilitic inguinal adenitis. *T. pallidum* was seen without difficulty in the dark field, and the Wassermann and Kahn blood reactions were posi-

tive. He was given three capsules of aureomycin daily for two days (total 1,500 mg.), and although the sore was still unhealed after 17 days no *T. pallidum* was observed at daily dark-field examinations during this time. A week later the sore had healed and the patient was discharged for surveillance.

Case 4 (Secondary Syphilis).—A Nyasaland negro attended with multiple perianal and peno-scrotal condylomata lata with enlarged non-painful inguinal glands. The dark field from the condylomata showed an abundance of *T. pallidum*, and the Wassermann and Kahn blood reactions were strongly positive. He was given one capsule of aureomycin orally three times a day for two days (total 1,500 mg.). The response was dramatic, and the lesions had healed completely by the fourth day. Daily dark-field examinations had been repeatedly negative.

Case 5 (Secondary Syphilis).—A female native of Southern Rhodesia was admitted with an indurated primary sore of the left labium majus, which was also oedematous. Secondary vulvar mucous patches and vulvar and perianal condylomata lata were also present, the whole being secondarily infected and evil-smelling. *T. pallidum* was seen without difficulty, and the Wassermann and Kahn blood reactions were markedly positive. She was given one capsule of aureomycin three times a day for two days (total 1,500 mg.), response being immediate. The daily dark-field examinations were negative for the ensuing four days, by which time the lesions had healed. She was kept under observation for a further three days; she was then discharged from hospital with instructions to attend as an outpatient. She returned, however, on the twelfth day with a relapse of the condylomata, and was then treated with penicillin.

Case 6 (Secondary Syphilis).—A female native of Southern Rhodesia was admitted with perivulvar and perianal condylomata lata, from which *T. pallidum* was obtained without difficulty. The blood Wassermann reaction was positive. She was given four capsules of aureomycin orally (total 1,000 mg.), and the lesions healed rapidly. Daily dark-field examinations were negative for the ensuing three days, and on the fourth the lesions had healed.

Case 7 (Secondary Syphilis).—A male South Rhodesian negro had a preputial sore from which *T. pallidum* was recovered and secondary condylomata lata on the scrotum. The blood Wassermann reaction was strongly positive. He was given three capsules of aureomycin orally on the first day and two on the second (total 1,250 mg.). Healing was rapid, being complete in four days, during which time daily dark-field examinations were negative.

Case 8 (Seronegative Primary Syphilis).—A male native of Southern Rhodesia had a giant fraenal chancre with typical syphilitic glands. The dark-field examination for *T. pallidum* was positive and the blood Wassermann reaction was negative. He was given six capsules of aureomycin orally in 48 hours (total 1,500 mg.). Daily dark-field examinations were negative during the next three days and the sore had nearly healed by the fourteenth day.

Case 9 (Secondary Syphilis).—A male South Rhodesian negro had an ulcerated prepuce with massive condylomata lata of the scrotum and inner thighs. *T. pallidum* was found on dark-field examination, and the blood Wassermann reaction was positive. He was given six capsules of aureomycin orally (1,500 mg.) over 48 hours. Although the dark field showed scanty *T. pallidum* at 24 hours, none was observed at two and three days. At two weeks, information was available to the effect that the condylomata had not disappeared but were quite dry.

Summary and Conclusions

Nine negro patients with early syphilis (two with seronegative primary syphilis, two with seropositive primary syphilis, and five with secondary syphilis) have been treated orally with aureomycin in doses of 750–1,500 mg. over 24–48 hours.

In six no *T. pallidum* was recovered at 24 hours, but in three the dark fields were positive at that time. In all, however, the dark fields were negative at 48 hours, and remained so daily for the periods over which observation was possible (3–17 days). Circumstances unfortunately prevented further observation.

Healing was most pronounced in the lesions of secondary syphilis, and in these the response was as dramatic as that obtained with penicillin, perhaps even more so. One case is known to have relapsed.

It is very unlikely that the small doses given were curative, although 250 mg. given four times a day for a week might well be.

It is concluded that aureomycin has a marked action upon human syphilis and opens up a new field of therapeutic investigation.

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COMMON DIFFICULTIES IN INFANT FEEDING*

BY

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One of the effects of civilization is the fact that a large proportion of human infants have become parasites on the cow. The extent to which American infants rely on cow's milk for nutriment was recently shown by Bain (1948), who states that in the North-Eastern region of the United States only 23% of all babies are fully breast-fed on discharge from maternity units. In this country the Population Investigation Committee (1948) revealed interesting geographical variations in the incidence of breast-feeding. While 24% of women in Southport were fully breast-feeding their infants at two months, 85% in Lewisham were: the corresponding figures for Cornwall and West Sussex were 45% and 80% respectively.

According to the Ministry of Health Report (1944) 80% of all babies born in hospitals in this country are discharged fully breast-fed, but 95% of those born at home are fully breast-fed at the same age. Read (1949) claims that 98% of 516 women treated by him with Waller's methods were fully breast-feeding their infants on discharge, and Waller (1946) found that 79.3% of 300 consecutive primiparae in a South London district were fully breast-feeding their babies at the age of 6 months. Kao (1948) found that 95% of 26,647 Chinese out-patients were fully breast-feeding their infants.

The most probable explanation of these wide variations lies in differences in the technique of management of lactation. The figures suggest that in some places difficulties in breast-feeding are either prevented or successfully overcome, while in others they lead to artificial feeding. Arti-

ficial feeding itself leads to other difficulties, which in turn are preventable.

The theme of this paper is the suggestion that a high proportion of the difficulties in infant feeding are man-made and preventable, and that the cause of them lies in the medical attendant rather than in an inherent defect in mother or baby.

Difficulties in Mutual Adaptation of Mother and Baby

The difficulties which arise in the mutual adaptation of mother and child in the first few days are basically due to the nature of the child, but birth injury may lead to irritability or inertia in the baby and so to difficulties in adaptation. The irritable baby (who has not had a birth injury) who screams when brought to the breast, or who approaches the breast normally and then immediately withdraws his head and kicks and cries, is made worse by attempts to discipline him.

Rigid rules about the duration and frequency of feeds which do not allow adaptation to the needs of the individual, or attempts to force the child to take food when he does not want it, serve only to increase the difficulty. The baby particularly resents efforts to hold his head or to keep the limbs at his side with the aid of tight clothes or a blanket. The irritability is still further aggravated by the unnatural system, which still has its advocates, of keeping the baby in a nursery away from his mother, of not allowing her to cuddle her baby, and of bringing the baby to the mother only at that time which is considered the right one for his feed. The mother's fondling and cuddling before a feed may go a long way towards soothing him and enabling him to take his feed more easily. These difficulties of the first few days have been ably described by Middlemore (1941).

Difficulties in the Mother

Many of the difficulties in breast-feeding arise from inadequate preparation of the mother during pregnancy. Some obstetricians take little interest in the preparation of the mother for breast-feeding, and few paediatricians are given access to the mother before her baby is born. It is the paediatrician, however, who has to help the mother to surmount the difficulties in the puerperium which may result from this neglect.

Some failures of lactation are due to the mother's lack of desire to feed her baby. This may arise from ignorance of the value of breast-feeding to the baby, from a mistaken idea of the greater convenience of bottle-feeding, or from a desire for greater freedom to visit friends and places of entertainment. She may be afraid of the recurrence of a sore nipple or mastitis experienced in a previous pregnancy. She may have been told that lactation will take a great deal out of her. She may fear that breast-feeding will spoil her figure or her clothes. She may have failed to breast-feed previous children and be convinced that she will fail again. Most of these doubts and misunderstandings can be removed by discussing them with the mother during pregnancy, explaining to her the advantages of breast-feeding to the baby and to herself, and impressing her with the pleasure and satisfaction she will derive from it.

Inadequate or improper preparation of the breast during pregnancy may be another factor of importance in causing failure of lactation. Waller (1946) advocates that the mother should be taught to express a few drops of colostrum once a day for the last two or three months of pregnancy. He has shown in carefully controlled experiments

*Read in opening a discussion in the Section of Child Health at the Annual Meeting of the British Medical Association, Harrogate, 1949.