SULPHONAMIDES AND ANTIBIOTIC DRUGS IN THE TREATMENT OF TRACHOMA*

BY

L. P. AGARWAL AND B. M. L. GUPTA

Department of Ophthalmology, Medical College, Agra, India

TRACHOMA is a widely prevalent disease in India and one of the most common causes of blindness. The idea that the disease is due to a virus is supported by the presence of intracellular inclusion bodies. Since the advent of sulphonamides and antibiotics many workers have used them in an attempt to cure trachoma, and opinion is sharply divided as to their merits. In this series of cases the value of terramycin, aureomycin, chloramphenicol, and sulphacetamide has been assessed.

Earlier Investigations

Terramycin.—Mitsui and Tanaka (1951) say that terramycin is superior to aureomycin and chloramphenicol; they recommend its use locally and say that oral administration is of little value. Mitsui and others (1951), in a subsequent report, confirmed these findings after a study of about 700 cases. Leopold (1951) and Siniscal (1952), on the other hand, say that it has no value except in clearing the secondary infection.

Chloramphenicol.—This has been used both orally and locally; Pijoan and others (1950) and Payne (1949) claimed good results, and Magnol (1950) claimed as many as 95 per cent. cures. Leopold (1951) and Siniscal (1952), on the contrary, found it of no value.

Aureomycin.—Braley and Sanders (1949) were the first to advocate its use and they claimed many successes. Their observations and findings were supported by Nataf (1950), Bellows and others (1950), Kagawa and Kyo (1950), Boase (1950), Trope (1950), Rais and Arroyo (1950), Lyons (1950), Mitsui and Tanaka (1951), Tabone (1950), and Shah (1951). Nataf (1950) and Ching (1951) expressed inconclusive opinions of the efficacy of aureomycin, and recommended it for the relief of subjective symptoms. Leopold (1951) and Siniscal (1952) were not convinced of its specificity in trachoma, either alone or combined with other drugs.

Sulphonamides.—There is considerable disagreement regarding the use of the sulphonamides, and the literature is so vast as to preclude its complete review. Some workers think that these drugs merely help to clear up the secondary infections (*e.g.*, Thygeson, 1940; Luo and Chang, 1940; Sorsby, 1945). Their use has been advocated by Lavery (1946), and Siniscal (1952).

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Material and Methods

A series of 250 patients with trachoma in the infiltrative or follicular stage, who showed the presence of inclusion bodies in the cells, were selected for this study. Conjunctival scrapings were obtained from the upper fornix by a sharp curette and spread on the slide. The scrapings were then stained by methylene blue and citric acid stain as advised by Poleff (1952). The scrapings were examined at 3-weekly intervals and the cases were followed for 6 weeks.

Fifty cases were used as controls, to whom no treatment was given except normal saline drops.

Fifty cases were given terramycin drops in each eye 2.5 mg./ml. three times a day, ointment 1 per cent. in each eye at bedtime daily for 6 weeks, and capsules one 6-hourly for one week.

Fifty cases were treated with chloramphenicol drops 2.5 mg./ml thrice daily, ointment 1 per cent. at bedtime, and four capsules a day for one week.

Fifty cases were treated with aureomycin ointment 1 per cent. thrice daily for one week and four capsules daily for one week.

The remaining fifty cases were given sulphacetamide, 30 per cent. eye drops, one drop three times a day, ointment 10 per cent. daily at bedtime for 6 weeks, and one sulphacetamide or sulphatriad tablet four times a day for 10 days.

A search for inclusion bodies was made in the stained slides; although inclusion bodies were absent at the end of 3 weeks, the treatment was continued and a further examination made at the end of 6 weeks.

The presence and progression or retrogression of pannus was also recorded during the period of observation.

The presence of such subjective symptoms as photophobia and congestion was also taken into account, and the effect of the drugs on them noted.

Results

Untreated Cases.—The inclusion bodies were present in all three specimens of tissue scrapings in all cases. It was therefore concluded that once the inclusion bodies were present, they did not disappear without treatment. The subjective symptoms and pannus also showed no abatement but progressed.

Cases treated with Chloramphenicol.—The subjective symptoms started to improve within 24 hrs, and the secondary infection cleared within 48 hrs in all cases. The inclusion bodies disappeared and the pannus retrogressed in four cases within 3 weeks. In twelve cases the pannus retrogressed within 5 weeks and the inclusion bodies disappeared at the end of 6 weeks. Cure rate 32 per cent.

Cases treated with Terramycin.—The results obtained were identical with those obtained with chloramphenicol as far as the subjective symptoms and secondary infection were concerned. In six cases the pannus retrogressed in about 2 weeks and the inclusion bodies were absent from the conjunctival scrapings at the end of 3 weeks. In six more cases the pannus retrogressed in 4 weeks and the inclusion bodies disappeared at the end of 6 weeks. Cure rate 24 per cent.

Cases treated with Aureomycin.—The results with this drug were identical with those obtained with the other antibiotics as far as the subjective symptoms and secondary infection were concerned. Ten cases were cured within 3 weeks, and ten more within 6 weeks. Cure rate 40 per cent.

Cases treated with Sulphonamide.—The subjective symptoms and the secondary infection were cleared with this drug also within 48 hrs. Fourteen cases were cured within 3 weeks and another 21 cases within 6 weeks. Cure rate 70 per cent.

These results are summarized in the Table. The cases were considered cured only when pannus and inclusion bodies were both absent.

TABLE
SUMMARY OF RESULTS OF VARIOUS FORMS OF TREATMENT IN TRACHOMA

Drugs	Cases Treated	Disappearance of						Total Cases Cured
		Secondary Infection	Pannus		Inclusion Bodies			
			3 wks	6 wks	3 wks	6 wks		
Terramycin ...	50	} within 48 hrs in all cases	8	6	6	6	12	
Chloramphenicol ...	50		10	15	4	12	16	
Aureomycin ...	50		12	13	10	10	20	
Sulphonamides ...	50		15	22	14	21	35	

Discussion

There is a wide divergence of opinion regarding the efficacy of antibiotics and sulphonamides in the treatment of trachoma; our observations show that to a certain extent all the drugs tried in this series are effective.

Pijoan and others (1950), Payne (1949), and Magnol (1950) claimed a very high percentage of cures with chloramphenicol. Leopold (1951) and Siniscal (1952), on the contrary, found it of value only in a small percentage of cases (sixteen out of fifty).

Mitsui and others (1951) advocated the local use of terramycin and claimed good results with it in trachoma but thought its oral use was of no benefit. We found the drug of some value, but even with combined local and oral therapy the cure rate was only 24 per cent.

We found aureomycin of only limited value, though better than terramycin or chloramphenicol (twenty cases cured out of fifty). Ching (1951) and Dunphy (1950) found that the drug had no effect on the trachoma virus, but since the follicles and inclusion bodies disappear and the pannus retrogresses after treatment with aureomycin, this criticism seems unfounded.

We agree with Siniscal (1952) in recommending the various sulphonamide products as the treatment of choice.

In view of the variable clinical response to all the drugs used in this series, it seems that the sensitivity of the trachoma virus to these drugs is not uniform and that possibly more than one strain of trachoma virus exists. It is suggested that treatment in every case should be initiated by sulphonamides, and that one or other antibiotic should be used if the disease fails to respond. A combination of oral and local therapy is recommended.

Summary

- (1) 250 cases of trachoma were studied.
- (2) The study was controlled by the demonstration of inclusion bodies in conjunctival scrapings at intervals of 3 weeks.
- (3) The efficacy of aureomycin, terramycin, chloramphenicol, and sulphonamides in the treatment of secondary infection was confirmed.
- (4) It was found that terramycin, chloramphenicol, aureomycin, and the sulphonamides were all effective to a lesser or greater extent in the treatment of trachoma.
- (5) It is suggested that the sulphonamides are the most, and terramycin the least efficacious, in the treatment of trachoma.
- (6) A combined local and oral therapy is recommended.

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