

Streptomycin in Treatment of Acute Syphilitic Orchitis of Rabbits.

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Dunham and Rake¹ have reported that the smallest curative dose of streptomycin in the treatment of experimental syphilis of rabbits varied from 187,000 to 374,000 units per kg of weight. In their experiments rabbits were inoculated intracutaneously with the Nichols strain of *T. pallidum* and treatment started within 3 days thereafter. The compound was administered intravenously every 4 hours over a period of 4 days. Since treatment was started before lesions had developed the results were more in relation to the prophylactic than the curative activity of streptomycin in this experimental infection. In parallel experiments the smallest effective dose of crystalline penicillin G was about 147 units per kg of weight so that this compound was about 3000 times more effective than streptomycin.

In our experiments 8 rabbits were inoculated intratesticularly with the Nichols-Hough strain of *T. pallidum*. Treatment of 6 animals was instituted about 6 weeks later at which time acute syphilitic orchitis had developed with strongly positive dark-field examinations; 2 rabbits were kept as untreated controls. Streptomycin* dissolved in sterile saline solution was injected intramuscularly at 10 a.m., 1 p.m. and 4 p.m. daily over a period of 8 days (24 injections). Clinical records and dark-field examinations were made every 2 days over a period of 10 weeks. Two animals were given 1000 units per kg, totalling 24,000 units; 2 were given 5000

units per kg, totalling 120,000 units and 2 were given 10,000 units per kg, totalling 240,000 units.

Serum assays were conducted according to the method of Stebbins and Robinson² using *Staphylococcus aureus* (SM strain). One-half to one hour after the 1000 unit dose per kg the serum levels showed from 3.0 to 4.1 units, 3.0 to 16.0 units after the 5000 unit dose per kg and 5.5 to 23.0 units after the 10,000 unit dose per kg per cc of serum.

At the end of the period of treatment one rabbit receiving a total of 24,000 units per kg showed some clinical improvement with negative dark-field examinations; similar results were observed with both rabbits receiving a total of 240,000 units per kg. Two weeks after treatment, however, all 3 of these animals showed relapsing infections with positive dark-field examinations. None of the remaining 3 treated animals showed the slightest clinical improvement and were persistently dark-field positive throughout the period of 10 weeks. Under the circumstances lymph node transfers to fresh animals were not made.

Summary. Streptomycin by intermittent intramuscular injection was slightly but temporarily effective in the treatment of 3 out of 6 rabbits with established acute syphilitic orchitis in total dosage of 24,000 to 240,000 units per kg of weight, but complete cures were not observed in any of the animals receiving total dosages of 24,000, 120,000 and 240,000 units per kg by intramuscular injection, over a period of 8 days.

¹ Dunham, W. B., and Rake, G., *Science*, 1946, **103**, 365.

* Streptomycin sulfate kindly supplied by the Abbott Laboratories, North Chicago, Ill.

² Stebbins, R. B., and Robinson, H. J., *Proc. Soc. Exp. Biol. and Med.*, 1945, **59**, 255.