R E S U L T S

Effect of streptomycin in progressively increasing doses on muscle twitches of gastrocnemius of cat induced by electrical stimulation of sciatic nerve: (Fig. 1)

Fig. (1) shows normal tone and amplitude of contraction of gastrocnemius muscle of cat in response to electrical stimulation of sciatic nerve.

Intravenous administration of 20 mg/kg streptomycin induced insignificant inhibitory effect which became constantly observed on repeating the same amount of streptomycin. With increasing the dose level of streptomycin to 30 mg/kg, the inhibitory effect on the amplitude of contraction became more significant, sustained and prolonged and the percentage of reduction in the amplitude of contraction reached maximally 64%. The normal contraction could be regained spontaneously after 15 minutes. On repeating the same amount of streptomycin, the percentage of reduction of contraction became more intensified. Prostigmine administered intravenously at a dose level of 100 µg/kg relatively hastened the rate of recovery of the preparation from the inhibitory effect of streptomycin but without

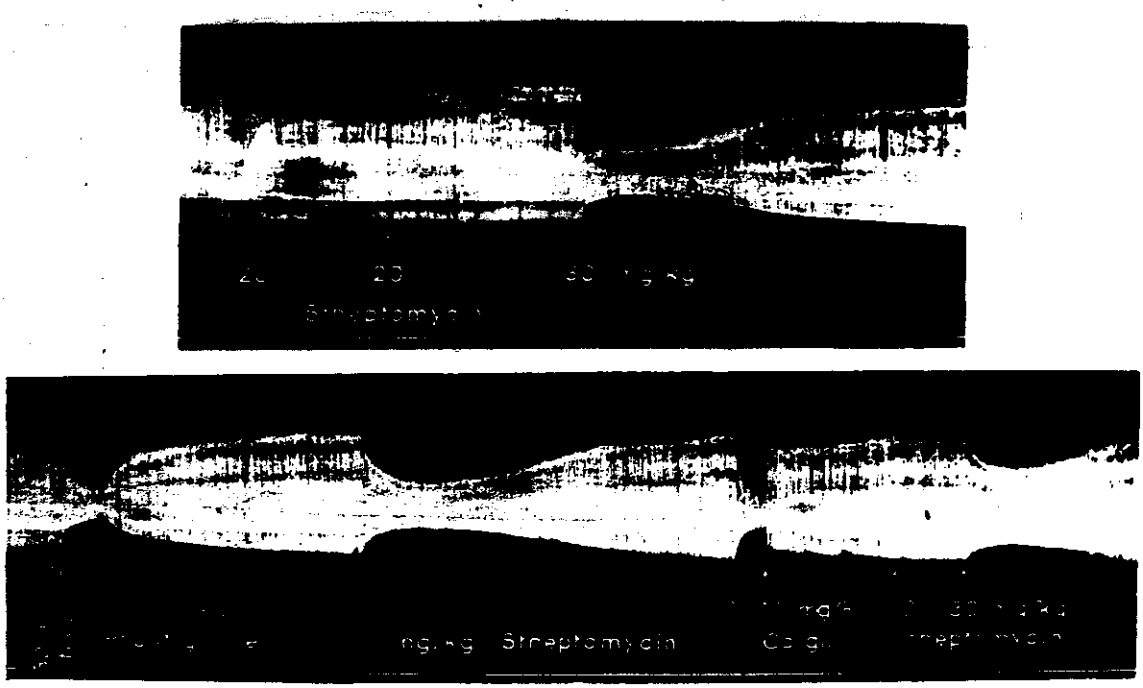


Fig. (1):

Effect of streptomycin in progressively increasing doses on muscle twitches of gastrocnemius of cat induced by electrical stimulation of sciatic nerve.

significant change on the normal pattern of recovery of the muscle. The normal contraction could be regained after 12 minutes. Readministration of the same amount of streptomycin still produced its characteristic inhibitory effect.

Calcium gluconate administered intravenously at a dose level of 100 mg/kg effectively reversed the inhibitory effect of streptomycin, the rate of recovery was immediate, rapid and almost complete. Moreover, calcium gluconate was effective in protecting the preparation against the depressant effect of streptomycin when reinjected again.

Effect of gentamycin in progressively increasing doses on muscle twitches of gastrocnemius muscle of cat induced by electrical stimulation of sciatic nerve: (Fig. 2)

Fig. (2) shows normal tone and amplitude of contraction of gastrocnemius of cat in response to electrical stimulation of sciatic nerve.

Gentamycin intravenously administered at a dose level of 20 mg/kg produced an insignificant effect on the amplitude of contractions of the preparation. Increasing the dose level of gentamycin to 30 mg/kg caused a significant reduction of muscle twitches which reached maximally 67%. The normal contraction could be regained spontaneously after 13 minutes. With repeated administration of the same amount of gentamycin, the inhibitory effect became more intensified. Prostigmine added intravenously at a dose level of 100 µg/kg relatively hastened the rate of recovery of the preparation from the inhibitory effect of gentamycin but without characteristic change on the normal pattern of recovery of the muscle. The normal contraction could be regained after 11 minutes. Readministration of the same amount of gentamycin still produced its characteristic inhibitory effect.

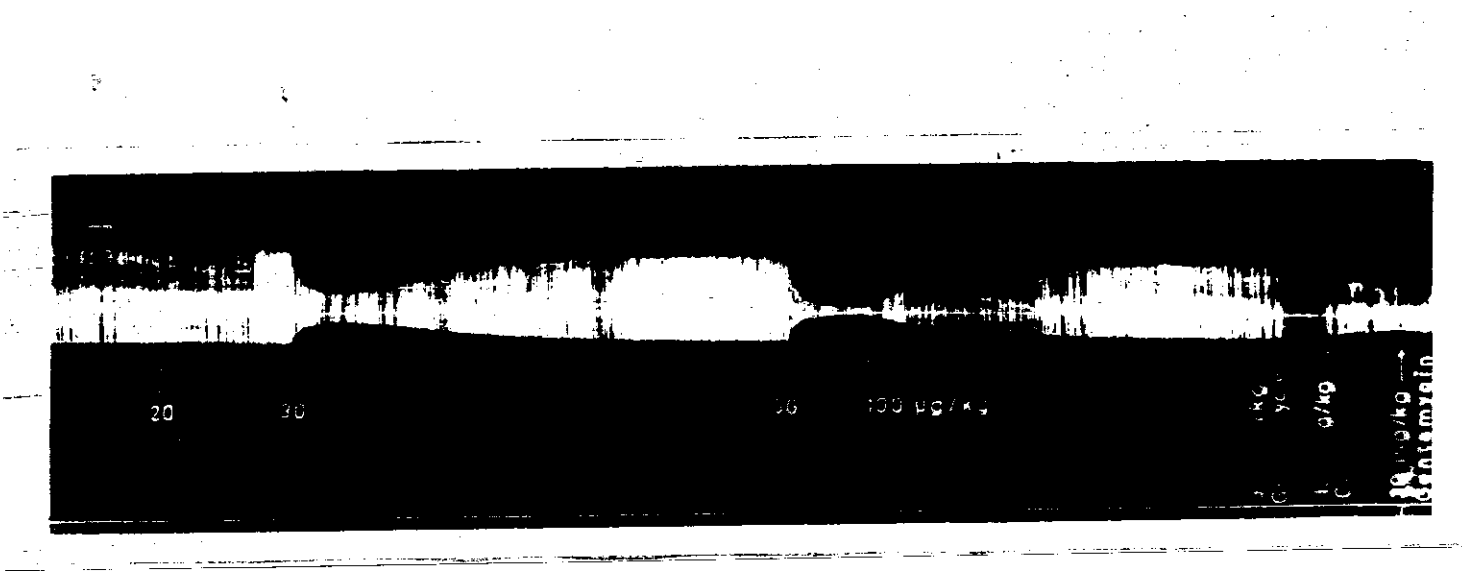


Fig. (2):

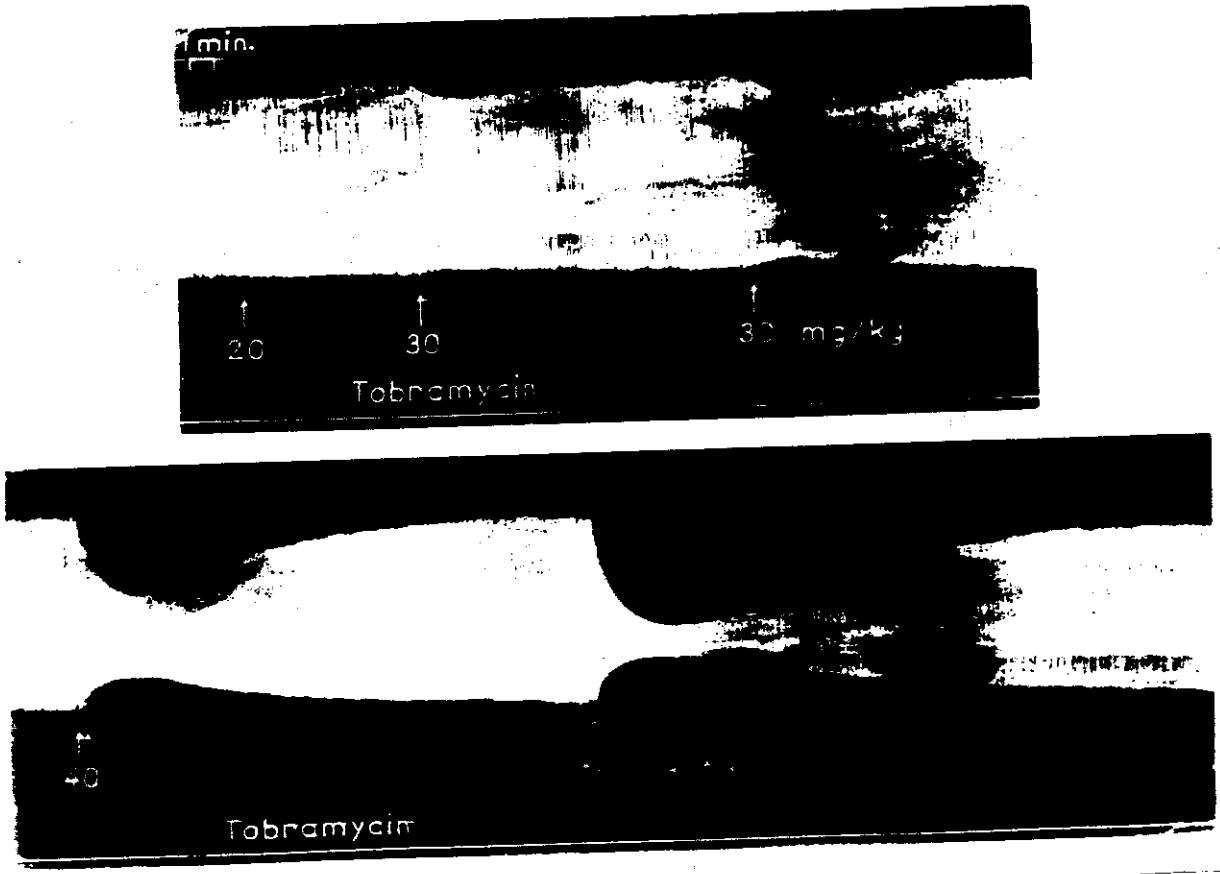
Effect of gentamycin in progressively increasing doses on muscle twitches of gastrocnemius muscle of cat induced by electrical stimulation of sciatic nerve.

Calcium gluconate administered intravenously at a dose level of 100 mg/kg effectively reversed the inhibitory effect of gentamycin, the rate of recovery was immediate, rapid and almost complete. Moreover, calcium gluconate was effective in protecting the preparation against the depressant effect of gentamycin when reinjected again.

Effect of tobramycin in progressively increasing doses on muscle twitches of gastrocnemius of cat induced by electrical stimulation of sciatic nerve: (Fig. 3)

Fig. (3) shows normal tone and amplitude of contraction of gastrocnemius muscle of cat in response to electrical stimulation of sciatic nerve.

Intravenous administration of tobramycin at a dose level of 20 mg/kg induced an insignificant effect on the amplitude of contraction of the muscle. With increasing the dose of tobramycin to 30 mg/kg, the inhibitory effect became more constantly observed. On repeating the same dose of tobramycin, the inhibitory effect became more sustained and prolonged. The inhibitory effect following administration of 40 mg/kg became more intensified and prolonged and the percentage of reduction reached maximally 54%. The normal amplitude of contraction could be regained spontaneously after 13 minutes. On repeating the same amount of tobramycin, the percentage of reduction became more intensified and reached maximally 95%. The normal amplitude of contraction could be regained spontaneously after 16 minutes. Prostigmine added intravenously at a dose level of 100 µg/kg relatively hastened the rate of



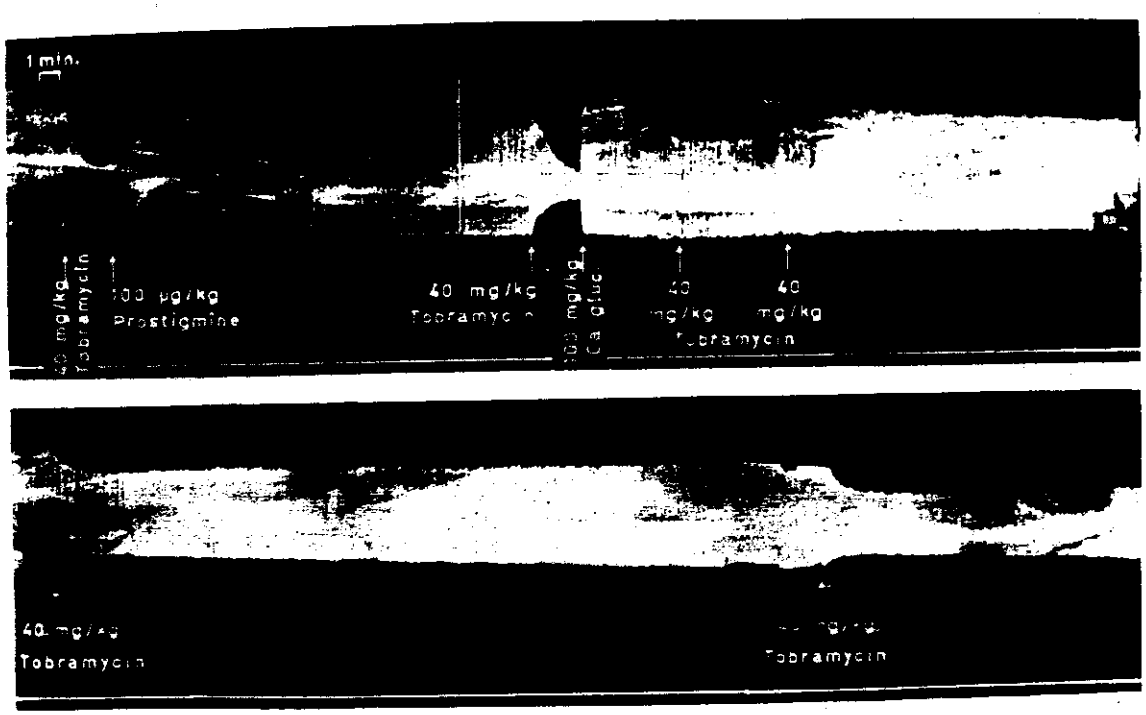


Fig. (3):
Effect of tobramycin in progressively increasing doses on muscle twitches of gastrocnemius of cat induced by electrical stimulation of sciatic nerve.

recovery of the preparation from the inhibitory effect of tobramycin but without characteristic change on the normal pattern of recovery of the muscle. Readministration of the same amount of tobramycin (40 mg/kg) still produced its characteristic inhibitory effect.

Calcium gluconate added intravenously at a dose level of 100 mg/kg was effective not only in reversing the inhibitory effect of tobramycin but also in antagonising the inhibitory effect following subsequent administration of tobramycin. The rate of recovery of the preparation following intravenous calcium gluconate was immediate, rapid and almost complete.

Effect of streptomycin on acetylcholine induced contraction of isolated rectus abdominis of toad: (Fig. 4)

Fig. (4) shows the control tetanic contraction response to acetylcholine when added to the bath containing the isolated rectus abdominis of toad in a dose of 2 µg/ml solution. Streptomycin in doses of 20, 40, 80 and 160 µg/ml solution was without any contracting effect on the preparation. Acetylcholine added in the control dose level, 3 minutes after administration of the varying doses of streptomycin produced a tetanic contraction less than the control response by about 6.25, 25, 31.25 and 37.25% respectively. Washing of the preparation regained the control response to acetylcholine. The rate of recovery was inversely proportional to the administered doses of streptomycin.

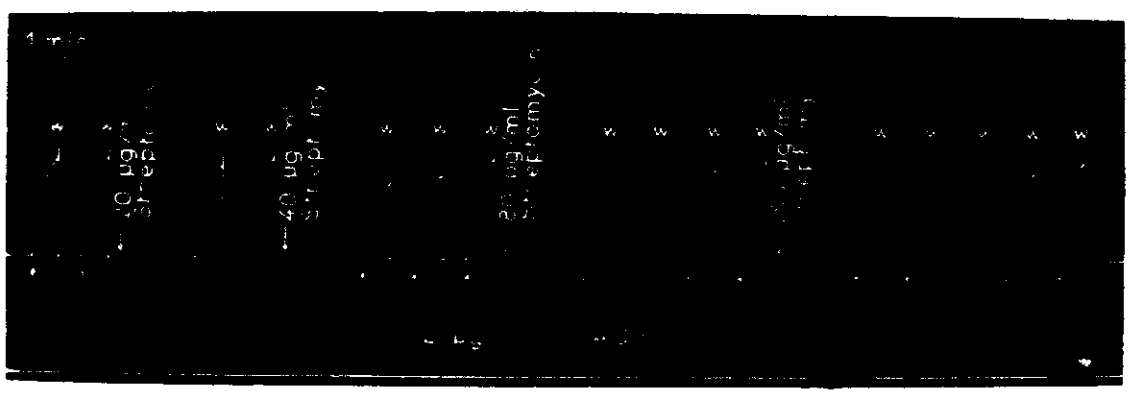


Fig. (4):

Effect of streptomycin on acetylcholine induced contraction of isolated rectus abdominis of toad.