

All of the animals killed after the 80th day showed gross lipid involvement of the aorta except numbers 150, 159, and 162 of Group I. These 3 rabbits whose blood cholesterol did not rise significantly, were considered to be "resistant".

The results reported by Best and his coworkers quoted above were not obtained in the choline-fed rabbits. Gross lipid deposition in the liver occurred in 16 out of 19 animals.

Summary and Conclusions. 1. The oral administration of 0.5 gm. of choline daily to 19 rabbits fed 1 gm. of cholesterol 3 times weekly did not prevent the development of a hypercholesterolemia comparable to that produced in 19 control animals fed cholesterol alone. 2. Ten of the choline-fed rabbits killed at intervals between the 40th and 80th days failed to show macroscopic atheromata in the aorta. Ten of the 11 control rabbits fed the same amounts of cholesterol and sacrificed at similar periods showed gross atherosclerosis. 3. After 80 days the macroscopic lesions of the aorta were similar in both groups. 4. It is concluded that choline delays but does not prevent atherosclerosis in cholesterol-fed rabbits.

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Magnesium as a Bronchodilator Agent in Perfused Guinea Pig Lungs.

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A series of perfusion experiments were performed on isolated guinea pig lungs to test the efficacy of magnesium as an antagonist against the bronchial constriction produced by histamine, pilocarpine and barium chloride.

Isolated guinea pig lungs were used. Except for slight modifications, the procedure was essentially the same as that described by Sollmann and Von Oettingen¹ and Tainter, Pedden and James.² Histamine 1:10,000, pilocarpine 1:1000 and barium chloride 2.5% were used as the constrictor drugs. Magnesium sulfate ($MgSO_4 \cdot 7H_2O$) was used in a 10.13% solution (1 cc. = 10 mg.

¹ Sollmann, T., and Von Oettingen, W. F., *PROC. SOC. EXP. BIOL. AND MED.*, 1928, **25**, 692.

² Tainter, M. L., Pedden, J. R., and James, M., *J. Pharm. and Exp. Therap.*, 1934, **51**, 371.

Mg.). The antagonistic action of magnesium against histamine and pilocarpine was studied by injecting a mixture of the constrictor drug and magnesium sulfate into the perfusion fluid, and comparing the perfusion rate thus obtained with the perfusion rate obtained when the constrictor drug was injected alone. The antagonistic action of magnesium against barium constriction was studied by adding magnesium sulfate to the perfusion fluid at the time of maximum barium constriction. Tainter's solution² was used as the perfusion fluid.

The action of the drugs studied was interpreted quantitatively by measuring the change in perfusion rate in cubic centimeters per minute and comparing this with the previously established control perfusion rate. The results were calculated as percentage increase (dilation) or decrease in perfusion rate (constriction). In 8 experiments on the isolated lung of 5 guinea pigs, 0.6 cc. of 1:10,000 solution of histamine produced 78 to 91% (average 82) constriction. In 5 experiments on the same lungs, 0.6 cc. histamine plus 1.5 cc. of magnesium sulfate produced only 15 to 53% (average 33) constriction. Maximum constriction in both instances occurred in 4 to 5 minutes. Recovery from histamine constriction required an average of 20 minutes while recovery from histamine plus magnesium occurred in 12 minutes.

In the perfused isolated guinea pig lung magnesium sulfate was found to be more antagonistic against pilocarpine constriction than against histamine constriction. In 5 experiments on 5 isolated lungs, 1.0 cc. of a 1:1000 solution of pilocarpine produced 43 to 66% (average 55) constriction. In the same number of experiments 1.0 cc. pilocarpine plus 1.0 cc. magnesium sulfate produced an actual dilation of 7 to 61% (average 27) over the previous control values.

That magnesium is effective against barium constriction was recently shown by Sollmann and Gilbert.³ In the study reported here 0.35 cc. of barium chloride was found to produce maximum decrease (77%) in perfusion rate in from 2 to 3 minutes with spontaneous recovery in from 22 to 38 minutes (average 30). Magnesium sulfate injected into the perfusate at the point of maximum barium constriction shortened the recovery period by 75%.

Conclusion. Magnesium is an effective antagonist to pilocarpine and barium constriction, and less effective against histamine constriction.

³ Sollmann, T., and Gilbert, A. J., *PROC. SOC. EXP. BIOL. AND MED.*, 1937, **36**, 16.