

Vasoconstrictor Properties in Blood of Hypertensive Dogs.**C. HEYMANS AND J. J. BOUCKAERT.***From the Department of Pharmacology, University of Ghent, Belgium.*

Experimental arterial hypertension has been induced in dogs by means of two different methods. In a series of dogs, the 4 moderator nerves (2 aortic and 2 carotid sinus nerves) were cut: both carotid sinuses were completely excised, one cervical aortic-sympathetic-vagus nerve was cut and out of the other aortic-sympathetic-vagus nerve, the aortic and sympathetic fibers were dissected and cut, leaving only a small bunch of vagal fibers sufficient to avoid the accidents of bilateral cervical vagotomy. This technic induces a permanent high blood pressure up to 320 mm Hg for several months. In another group of dogs, chronic arterial hypertension was induced by the permanent compression of the renal arteries, according to Goldblatt's technic.

In order to test the presence of vasopressor substances in the blood of these dogs suffering from chronic hypertension, the following technic was used: In a normal dog, anesthetized with chloralose and sensitized to vasopressor substances by means of cocaine injection, the volume of the spleen is registered by means of a very sensitive plethysmograph after one branch of the splenic artery has been ligated and prepared for intrasplenic arterial injections. By means of this method, it is possible to register a decrease in the spleen volume caused by an injection into the splenic circulation of adrenalin in amounts as small as 10^{-5} mg.

The vasopressor activity of the arterial blood (1-20 cc) of hypertensive dogs, obtained by femoral puncture and immediately injected into the splenic circulation of the test dog, was tested by means of this very sensitive preparation. These experiments showed that the blood of dogs rendered hypertensive by section of the moderator nerves, possesses, on an average, a higher vasopressor activity than the blood of normal dogs. This fact may be related to the higher sympathetic tone of these animals and, as a consequence, to an increase of the adrenalin content of their blood.¹ No well defined increased pressor response could be observed with the blood of dogs

¹ Heymans, C., *Le sinus carotidien et les autres zones vasosensibles reflexogenes*, Monographie, Revue Belge des Sciences medicales, Paris, Presses universitaires, Londres, Lewis and Co., 1929; Heymans, C., Bouckaert, J. J., and Regniers, B., *Le sinus carotidien*, Monographie, Paris, Doin, 1933.

in which chronic hypertension had been produced by renal ischemia. This observation corresponds to the findings of Prinzmetal, Friedman and Oppenheimer,² who could not find increased pressor properties in the extracts of blood from patients with hypertension or from dogs with experimental renal hypertension.

10103

Sulfanilamide and Diaminodiphenylsulfone and Their Diacetyl Derivatives in the Treatment of Experimental Intradermal Streptococcus Infections of Rabbits.

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The therapeutic effectiveness of sulfanilamide in experimental beta hemolytic streptococcus infections has usually been determined by the subcutaneous and oral administration of the compound to mice inoculated intraperitoneally.

Upon administration by either route the compound is rapidly absorbed and eliminated. A portion is conjugated into the acetyl derivatives but its therapeutic effects are unknown. It is commonly stated that in human beings the blood should carry from 10 to 12 mg of free sulfanilamide per 100 cc for therapeutic effectiveness.

As shown by Kolmer and Rule¹ the intradermal (shaven abdominal skin) injection of *virulent* beta hemolytic streptococcus in rabbits produces a large severe local lesion of hyperemia and edema followed by necrosis and abscess formation admirably suited for chemotherapeutic investigations since the influence of chemical agents may be determined clinically as well as, and very importantly, by lesion cultures. Septicemia rarely develops but by the simultaneous injection of streptococcus intravenously, septicemia is produced followed by suppurative arthritis in a large percentage of animals.

As shown by Kolmer, Brown, Rule and Werner² sulfanilamide in doses of 0.1 to 0.5 g per kilo orally twice daily (6 hours apart) for 5 days in succession usually produced clinical regression of the local

² Prinzmetal, M., Friedman, B., and Oppenheimer, E. T., *PROC. SOC. EXP. BIOL. AND MED.*, 1938, **38**, 493.

¹ Kolmer, J. A., and Rule, A. M., *J. Lab. and Clin. Med.*, 1937, **22**, 1097.

² Kolmer, J. A., Brown, H., Rule, A. M., and Werner, M. L., *J. Lab. and Clin. Med.*, in press.