11353

Treatment of *Bartonella muris* Infections with Sulfanilamide.

FREDERICK E. EMERY.

From the Department of Physiology, School of Medicine, University of Buffalo, Buffalo, N. Y.

Splenectomy in rats is often followed by anorexia, anemia, hematuria, emaciation, and death. The cause of these severe symptoms is known to be a parasitic infestation commonly spoken of as *Bartonella muris* infection.[1, 2, 3] Although the treatment of this condition is unsatisfactory, certain substances are beneficial, such as, arsenicals,[4] copper and iron,[5] and extracts of spleen.[5]

The beneficial effect of sulfanilamide and related compounds in distemper has been shown in dogs by Marcus and Necheles,[6] and in ferrets by Dochez and Slanetz.[7] Negative results have been noted in canine distemper[8] and in rats infected with *Trichinella spiralis*.[9] The wide use of sulfanilamide in these, and in other blood infections, led to the present experiments with *Bartonella muris*.

The rats used in these experiments were nearly full grown albino males. They were kept in a room having a constant temperature of 26°C with a variation of 2°C. Their diet consisted of Purina dog chow and water. Splenectomy, performed under ether anesthesia, was done through a shaved area of the skin, sterilized with alcohol. The same day, blood from a splenectomized rat suffering from an acute infection of *Bartonella muris* was injected intraäbdominally. Five cc of blood from the donor were mixed with 18 cc of 0.9% NaCl and 2 cc of a 25% solution of sodium citrate, making a total of 25 cc. Each recipient received 5 cc of this mixture. A 1% suspension of sulfanilamide was given intraäbdominally twice daily for 5 days in 5 cc amounts or a total daily injected dose of 100 mg. Also, about 20 mg daily were eaten with ground wheat. This made a total

1 Lauda, E., *Virchows Arch. path. Anat.*, 1925, **258**, 529.

2 Ford, W. W., and Eliot, C. P., *J. Exp. Med.*, 1928, **48**, 475.

3 Emery, F. E., *et al.*, *Endocrinology*, 1940, **26**, 167.

4 Mayer, M., *et al.*, *Klin. Wschr.*, 1926, **5**, 559.

5 Perla, D., and Marmorston-Gottesman, J., *J. Exp. Med.*, 1932, **56**, 777, 783.

6 Marcus, P. M., and Necheles, H., PROC. SOC. EXP. BIOL. AND MED., 1938, **38**, 385.

7 Dochez, A. R., and Slanetz, C. A., *Science*, 1938, **87**, 142.

8 Dickerson, V. C., and Whitney, L. F., PROC. SOC. EXP. BIOL. AND MED., 1938, **38**, 263.

9 McCoy, O. R., PROC. SOC. EXP. BIOL. AND MED., 1938, **38**, 461.

daily intake of approximately 120 mg and equal to at least 500 mg per kilo of body weight.

The sulfanilamide had no apparent effect on the *Bartonella muris*. All 15 of the treated rats gave positive blood smears, taken on the third to fifth day after being infected, and 10 died within 12 days. These were practically the same results as obtained in 15 untreated controls where 14 gave positive blood smears and 8 died. The effectiveness of sulfanilamide was further tested by adding 1% to the solution of physiological saline and sodium citrate just described for Group A. The donor blood was added to this 1% mixture and allowed to stand 10 minutes, then injected intraäbdominally into the splenectomized recipient rats. The results again failed to show any beneficial effect from sulfanilamide; 13 of the 15 rats in this group showed positive blood smears and all were dead within 12 days. The toxicity of the sulfanilamide may have contributed to the high mortality in this group as compared to the controls. In all groups the *Bartonella muris* bodies disappeared rapidly from the blood and were usually not found after the fifth day, even though the symptoms were so severe that the rats continued in an emaciated condition for several more days. After the twelfth day, few died.[2, 3]

Summary. Splenectomized rats infected with *Bartonella muris* were treated with sulfanilamide in doses of 500 mg per kilo of body weight. A study of 30 rats thus treated showed that the treatment had no detectable effect on *Bartonella muris*. The toxicity of the sulfanilamide seemed to be a factor contributing to the mortality.

11354

Effect of Thymectomy at Birth on Spermatogenesis in the Albino Rat.*

JAMES C. PLAGGE. (Introduced by Carl R. Moore.)

From Hull Zoological Laboratory, The University of Chicago.

Shay, *et al.*,[1] reported severe retardation of spermatogenesis following roentgen destruction of the thymus during the first few days of the rat's life. It would appear that if X-ray treatment of the

* This investigation has been aided by a grant from the Dr. Wallace C. and Clara A. Abbott Memorial Fund of The University of Chicago.

1 Shay, Harry, Gershon-Cohen, Jacob, Fels, Samuel S., Meranze, David R., and Meranze, Theodore, *J. Am. Med. Assn.*, 1939, **112**, 290.