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ANTHRAX

Prophylaxis: Human & animal sera (1959) Trans. V-1531 #658R

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Predokhranitel'nye svoistva syvorotok krovi cheloveka i zhivotnykh ot zabolevanii sibirskoi iazvoi

[Preventive properties of human and animal blood sera against anthrax]

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(In Russian)

The Laboratory of the Shanghai Meat Combine of the People's Republic of China, the Doctors LI and SIU participating, conducted a series of experiments for the purpose of establishing the properties of the human blood serum and of that of certain animals in the protection of laboratory animals against artificial infection with anthrax. The experiments were conducted on rabbits, guinea pigs and white mice.

The blood sera of the donors were prepared as follows: 30 ml of the blood was taken under sterile conditions into separate test tubes from each person (5 men and 5 women); for sedimentation, the test tubes were placed into a dark chamber at 4 to 8° for 24 hours. Thereafter, the blood of all test tubes was poured into one sterile container, and used for the experiments. Ten ml blood was taken from each of the 10 healthy one-year old swine (prior to the experiments, the temperature of each swine had been taken mornings and evenings during 14 days, no deviations from

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normal were reported); the serum was sedimented and subjected to the same treatment as the human blood. Approximately the same was done with the blood of five dogs, ten head of cattle, 8 horses and 10 rams. From each blood mixture obtained, four experiments were carried out.

The obtained normal blood serum of man and dogs was injected to experimental and control animals as follows: 3 ml were subcutaneously inoculated into the hind leg of rabbits (per 1 kg of weight), 1.5 ml to guinea pigs, and 1 ml to white mice; the blood serum of the rams was injected to rabbits at 4 ml per 1 kg weight. Forty eight hours after the inoculation, a 24-hour bouillon culture of Bac. anthracis was subcutaneously injected into the region of the groin of the experimental and control animals: to rabbits, 0.5 ml, to guinea pigs, 0.15 ml, and to white mice, 0.1 ml. The experimental animals were under observation for 20 days. Three rabbits, out of the 15 to which the human blood serum was injected, died within 6 days; all control rabbits died within two-three days.

The 15 rabbits which had been inoculated with the blood serum of dogs, survived, whereas the 10 control animals died within two to six days; all (five) guinea pigs, treated with the same serum, and 5 control animals, died; the former died after 140 to 160 hours, the latter, after 26 hours. All white mice (5), treated with the blood serum of dogs, died within 120 to 140 hours.

All (5) controls died after 18 to 20 hours.

Two rabbits, out of the 15, which had been inoculated with the serum of swine, died of anthrax within five to eight days, whereas all ten control animals died after two or three days.

Three experimental rabbits and one control rabbit were taken for each of the experiments conducted with the sera of rams, cattle and horses. The six rabbits, to which the sera of rams and horses were injected, died within two or three days. Out of the rabbits, treated with the serum of cattle, two rabbits died on the third day, whereas one, which became infected with anthrax of a severe course, survived. All three controls died within two-three days.

The cadavers of the rabbits were examined, and it was established that in the cadavers of rabbits which had been treated with the human serum, only a slight enlargement of the spleen was apparent, whereas in the control animals, this organ was two to three times enlarged and on the site of the injection of the culture a gelatinous infiltrate was observed. At the dissection of the cadavers of the control rabbits, white mice and guinea pigs, to which the blood serum of the dogs was injected, the following was observed: the spleen was twice or three times enlarged, and at the site of the injection of the culture a gelatinous infiltrate was found.

At the dissection of the cadavers of rabbits, treated with

the blood serum of swine, a twofold enlargement of the spleen was observed in the experimental animals, but no infiltrate was present; whereas in the control animals (rabbits) a two-three times enlarged spleen and a gelatinous infiltrate on the site of the inoculation of the culture were observed.

By bacterioscopical examination of the stained smears of the spleen, blood of the heart and liver of the animals the presence of B. c. anthracis was established. After seeding the obtained material of MPB [meat-pepton bouillon] and on MPA [meat-pepton ager] cultures of the same pathogen were obtained.

Based on the mentioned experiments the following conclusion can be made: the normal blood serum of dogs possesses the best properties for the protection of laboratory animals against the infection with anthrax; ~~the~~ second place takes the serum of swine, ~~whereas~~ the human blood serum is ~~the~~ third ~~one~~.

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