7094 P

Isolation of Streptococci in a Study of the Epidemic of Encephalitis in St. Louis.

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In a previous report[1] the consistent demonstration of streptococci in the spinal fluid obtained from patients during the active stage of encephalitis; the isolation of a streptococcus having peculiar cataphoretic velocity and virulence from the nasopharynx, spinal fluid, and brain; the specific agglutinability of the streptococcus by the encephalitis antistreptococcus serum, and by the serum of convalescent patients; and the production in rabbits of the more important acute clinical and pathological manifestations of the disease, have been recorded. Since then the streptococcus has been isolated from the blood of 5 of 7 patients during the active stage of the disease, it has been found in the nasopharynges and spinal fluids in additional cases, and a large proportion of contacts and non-contacts in the epidemic zone have been found to be carriers of this streptococcus. Thus, the streptococci of 52 (81%) of the different strains isolated from 64 persons in the active stage of the disease (2 to 10 days) had mainly neurotropic cataphoretic velocity. The streptococci of 78 (52%) of the different cultures from 149 well persons and patients with diseases other than encephalitis, in the epidemic zone, had a similar neurotropic cataphoretic velocity. The results in both of these groups were in sharp contrast to the results in 149 well persons and patients with diseases other than encephalitis, remote from the epidemic, in which the streptococci from only 39 (26%) had mainly neurotropic cataphoretic velocity.

Streptococci or diplococci have been demonstrated in or adjacent to the lesions of the brain, and in the sediment of spinal fluids of rabbits and monkeys that developed encephalitis following inoculation with the streptococcus, and with emulsions of the glycerolated brain in fatal cases, and in or adjacent to the lesions in the brains in several fatal cases.

The precipitin reaction with the encephalitis antistreptococcus serum and cleared nasopharyngeal washings, was positive in 78% of 69 active cases, and in 49% of 149 contact and non-contact con-

[1] Rosenow, E. C., *Proc. of Staff Meetings of The Mayo Clinic*, 1933, **8**, 559.

trols residing in the epidemic zone, as compared with 14% of 159 well persons tested remote from the epidemic.

All (100%) of 6 cases of encephalitis in from the second to the fourth day of the disease gave a strongly positive skin test following injection of the heat-killed streptococcus isolated from the spinal fluid of acute cases. Only 4 (11%) of 37 cases in from the eighth day to the fourteenth day of the disease gave a positive reaction. The incidence of a positive skin test in different groups of persons residing within, and remote from, the epidemic zone ranged from 48 to 72%. The marked reduction in incidence of positive reactions during recovery from encephalitis occurred only in the case of the antigen prepared from the streptococcus of encephalitis. The incidence of positive Schick and Dick tests was about the same among the patients with encephalitis, irrespective of the time of the attack, as it was among well persons, and in all instances reaction was nearly always absent to the antigen prepared with streptococci isolated from the nasopharynges of well persons.

Thus far 4 of 12 strains of streptococci that had manifested characteristic virulence, when placed in milk, resisted heating to 63°C. (145°F.) for 30 minutes and retained their virulence if cultures for viability and animal inoculation were made in tall tubes of dextrose-brain broth.

7095 C

Ether Hyperglycemia.

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Glycosuria following etherization was first observed by Reynoso,[1] while the increase of blood sugar accompanying ether anesthesia was first reported by Seelig.[2] Section of the nerves to the liver does not prevent the hyperglycemia resulting from the administration of ether.[3] If the adrenals are inactivated, however, this rise in blood sugar is in large part prevented, as Keeton and Ross[4] showed.

That adrenin rather than the action of sympathetic impulses is the potent factor in liberating sugar from the liver has been shown by Bulatao and Cannon[5] and by Britton.[6] Reid[7] had advanced

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