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Dr. Krugman

Immunization Developed Against Serum Hepatitis

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NEW YORK—Immunization against serum hepatitis has been developed at the New York University Medical Center by Dr. Saul Krugman, professor and chairman of the department of pediatrics, and his associates.

The findings were reported by Dr. Krugman at an honors program lecture at the NYU Medical Center here.

He said a serum made from the MS-2 (serum hepatitis) viral strain was inactivated by boiling for 1 minute. Trials on 14 susceptible children demonstrated that its infectivity was destroyed but its antigenicity was intact.

Four of the susceptible children received two inoculations with the inactivated serum and were subsequently exposed to infectious serum. None developed hepatitis, and all developed detectable levels of antibody.

Another 10 susceptible children received one inoculation before exposure. Five of the 10 were protected from hepatitis infection and the other five developed unusually mild infection, suggesting that one inoculation at least modifies the severity of the illness.

The results even with one inoculation were "impressive when compared with a 96% to 100% attack rate when susceptible individuals were exposed to infectious MS-2 serum in the past, Dr. Krugman said.

A method of passive immunization against serum hepatitis also has been developed by Dr. Krugman's group. They used hepatitis B IgG to prevent disease in patients already exposed to serum hepatitis.

The IgG was supplied by Dr. Alfred M. Prince of the New York Blood Center, the investigator who first demonstrated the specific association of the Australia antigen with serum hepatitis. Dr. Prince's work followed what Dr. Krugman called the "crucial breakthrough" in hepatitis research—the dis-

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covery in the late 1960's of the Australia antigen and its association with viral hepatitis by Blumberg and his associates.

In the passive immunization studies, Dr. Krugman's group exposed 15 susceptible persons to infectious serum. Four hours later 5 of the 15 were inoculated with standard γ globulin and the other 10 were given the special hepatitis B IgG. Three of the five children who received standard γ globulin developed hepatitis. None of the 10 receiving the special IgG developed the disease.

Noting that the studies were done on a small number of persons and that further study is necessary, Dr. Krugman said the findings still are significant when compared to previous data.

The study was done in a unit at the Willowbrook State School on Staten Island, where hepatitis has always been endemic. Although extremely mild and nondebilitating in children, the disease in adults is extremely debilitating and of long duration.

Its importance has grown in recent years because of a sharp increase in the need for whole blood for open-heart surgery and other surgery requiring massive blood transfusions. A significant percentage of open-heart patients contract the disease after surgery because of transfusion with contaminated blood.

Increasing drug addiction has also contributed to the growing incidence of hepatitis, readily spread by contaminated

needles.

Dr. Krugman and his associates have been studying hepatitis since 1956. The recent findings were built on a broad base of knowledge stemming from the work of many scientists. It began in the 1940's with work by Findlay, MacCallum, Havens, Paul Neefe, and Stokes.

Further contributions were made by Murray in the early 1950's and the NYU group in the 1950's and 60's. The "crucial breakthrough" of Blumberg and then Prince "was followed by an explosion of knowledge about the morphology, biophysical and biochemical properties, and specificity of the antigen.

"The subsequent development of sensitive tests for the detection of antigen and antibody provided the technology for the continued pursuit of our studies on the natural history and prevention of viral hepatitis," Dr. Krugman said.

Control of the disease by a vaccine is now at hand, he suggested.

A separate development in the effort to control hepatitis is the licensing of the first commercially available test for hepatitis-associated antibody (anti-Australia-antigen) by the Division of Biologics Standards of the National Institutes of Health.

The license was granted to a division of Abbott Laboratories. The test can be used by blood banks and laboratories for screening blood for the antigen. Abbott estimated that 30,000 cases of serum hepatitis result annually from blood transfusions, with about 3,000 deaths.
