Frequency of Australia Antigen Detected by Radio-immunoassay in Hepatitis in Children

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CHIBA, S., FUJIWARA, T., SHIONO, H. and NAKAO, T. *Frequency of Australia Antigen Detected by Radioimmunoassay in Hepatitis in Children.* Tohoku J. exp. Med., 1973, 109 (3), 307-308 — Ninety-eight serum specimens obtained from 53 cases of hepatitis in children and 11 specimens from 10 cases of biliary atresia were tested for Australia (Au) antigen by radioimmunoassay (RIA). Au antigen was detected in 3 out of 10 cases of post-transfusion hepatitis (30%), in 14 out of 18 cases of viral hepatitis (78%) without known parenteral exposure to blood or blood products and in 2 out of 2 cases of chronic hepatitis (100%). In contrast to them, antigen was detected in none of 23 cases of neonatal hepatitis and 10 cases of biliary atresia. — Australia antigen; radioimmunoassay; hepatitis in children

Several workers (Gillepsie *et al.* 1970; Schweitzer and Spears 1970; Krech and Sonabend 1970; Wright *et al.* 1970; Konno 1972) have described the possible correlation of Au antigen and neonatal hepatitis. Prince and associates (1970) reported that none of 19 sporadic cases of hepatitis occurring in children showed presence of detectable antigen, in contrast to the high frequency of the antigen in adults patients with viral hepatitis who gave no history of parenteral exposure to blood or blood products. Accordingly, correlation between Au antigen and hepatitis in children seems to require more intensive investigation. This brief report is concerned with detection rate of Au antigen in hepatitis in children using radioimmunoassay (RIA) which is the most sensitive method available for detection of the antigen.

The subjects and serum specimens tested were as follows: Twenty-six specimens from 18 sporadic cases of viral hepatitis without known parenteral exposure to blood or blood products, 15 specimens from 10 cases of post-transfusion hepatitis, 6 specimens from 2 cases of chronic hepatitis, and 51 specimens from 23 cases of neonatal hepatitis which include a few cases of giant cell hepatitis diagnosed by autopsy or needle biopsy. Eleven specimens from 10 cases of biliary atresia were also included in this study. Hundred serum specimens obtained from out-patients under 15 years old without any hepatic disorder were used as a control group. All serums were tested for presence of Au antigen by commercial Ausria-125 kit of Abbott Laboratories.

Frequency of detectable Au antigen in each of the study groups is shown in Table 1. As seen in the table, the antigen was detected with very high frequency in the groups of viral hepatitis (14 out of 18 cases) and chronic hepatitis (2 out of 2 cases). Frequency of the antigen was rather low in the group of post-transfusion hepatitis (3 out of 10 cases). The patients with chronic hepatitis showed persistent antigenemia, whereas antigen was detected at the highest rate in acute phase of illness in the case of acute hepatitis. In contrast to them, the antigen was not detected in any case of neonatal hepatitis and biliary

Received for publication, January 23, 1973.

* Director: Prof. T. Nakao.

TABLE 1. *Frequency of Au antigen in various kinds of hepatitis in children*

Group	No. of cases	No. of positive	Percentage
Post-transfusion hepatitis	10	3	30.0
Viral hepatitis*	18	14	77.8
Chronic hepatitis	2	2	100.0
Neonatal hepatitis	23	0	0
Biliary atresia	10	0	0
Control	100	3	3.0

* Sporadic cases without known parenteral exposure to blood or blood products.

atresia. The antigen was detected in 3 out of 100 serum specimens of control group. The data suggest that serum-hepatitis virus is the major cause of sporadic hepatitis occurring in children in this area, and that the Au antigen is rarely associated with neonatal hepatitis or biliary atresia.

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