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PLATELET ANTIBODIES IN VIRAL HEPATITIS*

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In the pathogenesis of idiopathic thrombocytopenic purpura (ITP) viral upper respiratory system infections are generally considered[1,2]. The relation of other viral infections, such as mumps, measles and rubella in the pathogenesis of this disease is also taken into account[3-6]. There are few case reports of thrombocytopenia in which hepatitis is suggested in the pathogenesis[1,7,8]. Therefore, we studied the thrombocyte counts and platelet antibodies in cases of acute hepatitis.

Material and Methods

Twenty-five children with jaundice in whom the diagnosis of acute hepatitis was made according to their histories and laboratory findings (elevated SGOT and SGPT, conjugated and total bilirubin and bilirubinuria) are the subjects of this study. The ages of the patients ranged between three and fifteen years (mean 6.8 years and median 6 years). There were 14 girls. The HBsAg and anti-HBs in all the subjects were determined by counter immunoelectrophoresis[9]. HBsAg was seen in three (12%) patients but anti-HBs was not present in any.

The sera of sixteen age-matched normal children and eight children with ITP served as negative and positive controls of the anti-platelet antibody determinations obtained according to a modified method of Handin and Stossel which is dependent upon NBT reduction[10]. The diagnosis of ITP was based on platelet counts of less than 50,000 µl with a normal or increased number of megakarocytes in the bone marrow. In our control subjects, platelets were counted by phase contrast microscopy which ranged between 150,000 and 400,000 / µl[11]. No underlying disease was shown by the lupus erythematosus cell preparation (performed three times), throat culture, Coombs test and fluorescent anti-nuclear

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antibody determinations. All patients included had a negative history for drug ingestion and none of them had been recipients of platelet or blood transfusions prior to this study.

Results

During the first visit of the twenty-five patients with acute hepatitis, the NBT reduction value recorded at 580nm optical density ranged between 0.020 and 0.045 (0.027 ± 0.006*). The NBT determinations which were able to be obtained two weeks later in seventeen of the patients ranged between 0.020 and 0.052 (0.030 ± 0.008). In the controls and ITP patients, these values ranged between 0.018 and 0.025 (0.021 ± 0.002) and 0.030 and 0.060 (0.045 ± 0.009), respectively (Table I, Fig. 1).

TABLE I: Optical Densities of the Study Groups

	Controls (n = 16)	Patients with acute hepatitis 1st visit (n = 25)	Patients with acute hepatitis 2nd visit (n = 17)	ITP (n = 8)
• $\bar{X}$ ± SD	0.021 ± 0.0027	0.027 ± 0.006*	0.030 ± 0.008**	0.045 ± 0.009*
Range	0.018 – 0.025	0.020 – 0.035	0.020 – 0.052	0.030 – 0.060

* In comparison to the controls, $p < 0.001$
** In comparison to the first visit, $p > 0.05$

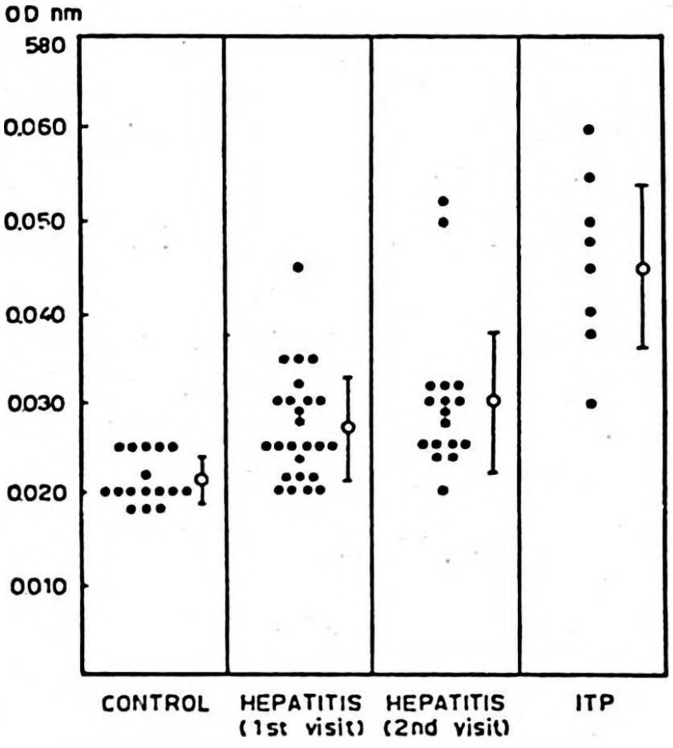

Fig. 1: Optical densities (OD) of controls and patients with ITP and hepatitis (at first and second visits).

Platelet counts of the patients with hepatitis were found to be within normal limits in both determinations which could be obtained at two week intervals. The count changes did not correlate with the NBT reduction values of these patients. However, NBT reduction was statistically higher in the hepatitis groups ($p < 0.001$ at both visits) than in the healthy control groups and the ITP patients. But, no difference was shown in the NBT reduction values during the first and second visits of the patients with hepatitis ($p > 0.05$).

Discussion

Thrombocytopenia did not develop in any of the hepatitis patients. However, platelet antibodies were seen in 36% and 46% of these patients, during their first and second visits, respectively. We have also demonstrated that anti-platelet antibodies can be present in cases of childhood gram negative sepsis at a very early stage, without causing thrombocytopenia[12].

It should be noted that despite the presence of platelet antibodies in all ITP cases, in relapse or remission, the platelet counts did not correlate with the NBT reduction values[6,10,13].

Platelet antibodies were seen in nine out of twenty-five (36%) of the hepatitis cases on the first visit and eight out of seventeen (47%) on the second visit, when the lowest NBT reduction optical density level for ITP cases (0.030) was taken into consideration. Unfortunately, these cases could not be followed up later to observe the changes of the platelet antibodies. However during the follow-up period they stayed high in two cases, decreased in four and increased in five of the seventeen cases in whom first and second determinations could be obtained, respectively.

Hepatitis B virus infection was observed in three of the subjects and antiplatelet antibodies were demonstrated in two of them. Since the number of patients was very limited, the relation between HBsAg and antiplatelet antibodies could not be evaluated. In this study, most of the children presented with non-B type hepatitis. It is not possible to say whether these patients had type A hepatitis or not since hepatitis A virus antibodies could not be determined. But it seems most likey that this was the case, because the patients improved in two weeks. Since thrombocytopenia was not observed among these patients, we can not conclude that hepatitis might be a cause of thrombocytopenia despite the detection of antiplatelet antibodies in some of the patients. An elevation of platelet-associated İmmunoglobulins has been observed in most cirrhotics which were also found to have no correlation with platelet counts[14].

Summary

Although antiplatelet antibodies were observed in the sera of 36% and 47% of twenty-five of our subjects with acute hepatitis taken at two week intervals, in which the Handin and Stossel method was used, thrombocytopenia was not documented in any of them.

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