Detection of Elevated Anti-Idiotypic Antibody Levels in Immune Thrombocytopenic Patients Expressing Antiplatelet Antibody

To the Editor:

Immune thrombocytopenia is an immune disorder in which circulating antiplatelet antibodies sensitize platelets resulting in phagocytosis of this blood clotting element by the reticuloendothelial system. Immune thrombocytopenia is an excellent human model to evaluate immune thrombocytopenic patients sensitized and refractory to platelet transfusion (RPT; P = .0004 and P = .002, respectively) elevated when compared with the values obtained from a group of 8 normal individual serum samples tested against each of the 16 IgG F(ab')2 idiotype fragments (Fig 1). These data indicate that the immune thrombocytopenic patient population tested in this study had higher levels of anti-idiotypic antibody that appeared to be stimulated in response to the production of IgG autoantibody or alloantibody.

The data presented in this study suggest that anti-idiotypic activity is associated with the disease process in immune thrombocytopenia. If we assume that an original antigenic insult initiated the immune thrombocytopenia, it follows that there would be subsequent stimulation of an anti-idiotypic response, as proposed by Jerne. The ensuing response in itself may exacerbate the immune process because of antigen mimacy of the anti-idiotypic antibody. This is exemplified in the murine model of SLE wherein clinical manifestations of the disease can be generated by immunization with anti-DNA antibody 16/6 idiotype. Indeed, after immunization and a single immunologic boost with 16/6 idiotype, mice produce anti-16/6 idiotype antibodies, anti-DNA antibodies, and anti-nuclear antigen antibodies. Moreover, after a period of 4 to 6 months, the immunized mice developed proteinuria and leukopenia, and immune complexes were detected in their kidneys. This experimental murine model closely parallels human SLE with respect to production of autoantibodies and subse-

Fig 1. This figure represents the levels of anti-idiotypic antibody observed in normal subjects and immune thrombocytopenic patients having circulating anti-gpIIbIIIa antibody. Relative to 8 normal subjects, there was a significant elevated level of IgG anti-idiotypic in a group of 6 patients with autoimmune thrombocytopenia (ITP; P = .0094) and a significant elevated level of IgG anti-idiotypic in a group of 10 alloimmune thrombocytopenic patients refractory to platelet transfusion (RPT; P = .002). (©) The individual values obtained on each patient or subject. Vertical bars represent the mean ± 1 SD for each group. Statistical analyses were performed using the Student's t test.
quent clinical manifestations. Interestingly, a recent study by Mozes et al.² proposed that failure to generate an idiotypic network may be protective for experimental murine SLE. If this model reflects an actual immune process in humans, then immune thrombocytopenic patients presenting with identifiable antiplatelet antibody should also exhibit corresponding anti-idiotypic antibody. This is indeed what we observed in the present study, which implicates the development of an anti-idiotypic response as an important factor associated with the immunopathology of immune thrombocytopenia. The observations reported here provide insight into the humoral immune processes that may contribute to immune thrombocytopenia.

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REFERENCES

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