Multiple Recurrence of Acute Idiopathic Thrombocytopenic Purpura

A 41-year-old man presented to our hospital with generalized petechial hemorrhages on March 28, 1984. Two days earlier, he had developed a common cold with symptoms of sore throat, dry cough, and a temperature of 38.2 °C. He had not taken any medications prior to the onset of hemorrhage. Physical examination showed a typical feature of common cold. Laboratory examinations revealed a platelet count of 20 × 10^9/1 and a white cell count of 10 × 10^9/1 (61% neutrophils, 7% monocytes, 4% eosinophils, 26% lymphocytes, and 2% atypical lymphocytes). The hemoglobin concentration was 16.3 g/dl. Examination of the coagulation system and serum biochemistry gave nonspecific results. The C-reactive protein level was slightly elevated to 1.4 mg/dl (normal: < 0.3 mg). Serological tests for autoimmune disorders and viral infections were nonspecific. The patient was not given any medications, and 1 week later hematological examination showed complete recovery of the platelet count to 453 × 10^9/1. The subsequent clinical course of this patient is displayed in figures 1 and 2. Bone marrow aspirates obtained at the second and third attacks of thrombocytopenia showed a moderate reduction of megakaryocyte number without any other abnormalities, whereas that obtained during sustained remission of the disease revealed normal megakaryocytopoiesis. At the third attack of thrombocytopenia, oral prednisolone therapy was started because of severe bleeding tendency, and was continued until 1989, when the platelet count remained within normal limits. At the last attack of thrombocytopenia in 1986, the platelet-associated IgG level was 210 ng/10^7 platelets (normal range: 9-25 ng) as measured by ELISA [4], whereas the level was 12.0 ng/10^7 platelets in November 1989 when the platelet count was normal.
Culture of megakaryocyte progenitor (CFU-Meg) was performed using the multilineage colony assay described previously [5, 6]. In this study erythropoietin (step 3) was purchased from Connaught, Canada. On day 14 of culture, colonies containing more than 8 megakaryocytes were counted. Three different sources of non-heat-inactivated human plasma were used for cultures (table 1). When AA-pl was used, erythropoietin was removed from the as-

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Mill PLT-TF (10U.)
prednisolone (mg/day)

K
K
fN² ng
10 mg
- 7.5 mg
Fig. 1. Clinical course of our patient. Arrows indicate episodes of viral illness (the common cold) which the patient developed. PLT-TF = Platelet transfusion.

Table 1. Generation of megakaryocyte colonies by bone marrow cells of the acute ITP patient

| 2 | Pooled plasma from a patient with severe aplastic anemia. |
| 3 | Plasma from the patient obtained 1 or 2 days prior to the bone marrow aspiration (autologous plasma in each experiment). |
| 4 | Pooled plasma from a healthy donor. |

As shown in Table 1, the number of megakaryocyte colonies grown from the patient’s bone marrow cells obtained during attacks of thrombocytopenia in the presence of AA-pl was significantly (p < 0.02 by Student’s t test) reduced when compared to the control values, while the patient’s bone marrow cells obtained during remission of the disease generated a normal number of colonies. In the two experiments performed during attacks of thrombocytopenia, P-pl generated more megakaryocyte colonies than N-pl did (p < 0.05) in the first experiment.

We have reported the whole clinical course of a patient who had a total of 14 recurrences of thrombocytopenia. To our knowledge, there have been no previous reports of acute ITP with more than 5 recurrences. In our patient, each attack of thrombocytopenia was preceded by a common cold with a 2- or 3-day time lag. The platelet count always returned to normal between the episodes of thrombocytopenia either with prednisolone or without therapy. These facts suggest that the attacks of thrombocytopenia in our patient were multiple recurrences of acute ITP.

163
86 1987

Fig. 2. Clinical course of our patient (continued).

Fig. 2. Clinical course of our patient (continued). Rather than exacerbations of relatively mild chronic ITP. The fact that the number of bone marrow megakaryocytes and CFU-Meg was moderately decreased suggested that our patient had circulating autoantibodies directed against not only platelets but also marrow megakaryocytes.
and CFU-Meg. Regarding such autoantibodies, Hoffman et al. [7, 8] reported the presence of a complement-dependent serum IgG inhibitor directed against marrow CFU-Meg in patients with immune thrombocytopenic purpura. Nevertheless, the plasma from our patient exhibited only promoting activity for CFU-Meg. As a possible explanation, the activities of complement or autoantibodies contained in the plasma might have been insufficient in the CFU-Meg assay employed, because we did not add an exogenous source of complement or extracted serum IgG fraction to the assay.

References

Takahashi/Nakamura/Sugiyama/Imura
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