HIGH-DOSE INTRAVENOUS GAMMA GLOBULIN IN ALLOIMMUNIZED PLATELET TRANSFUSION RECIPIENTS

To the Editor:

We were quite interested in the recent article by Schiffer and colleagues demonstrating the lack of an effect of high-dose intravenous (IV) gamma globulin in alloimmunized platelet transfusion recipients. We have also studied the use of this therapeutic modality in five leukemic patients who were refractory to platelet transfusions. Four individuals had acute myelogenous leukemia (AML) and one patient had chronic myelogenous leukemia (CML) with lymphoid blast crisis. All of our patients were receiving re-induction chemotherapy for leukemia in relapse and were severely pancytopenic at the time of the gamma globulin infusions. Each patient had received a large number of platelet transfusions during prior induction therapy before this hospitalization. Concomitantly, our patients were all receiving two or three broad spectrum antibiotics and, in some instances, amphotericin B for persistent fever. Patients were judged to be alloimmunized if the one-hour posttransfusion platelet counts following administration of ten units of random donor platelets did not rise more than 10,000/μL. In contrast to the patients studied by Schiffer et al, our patients were unresponsive to HLA-matched platelet transfusions. The high-dose gamma globulin was administered in an attempt to decrease the marked incidence of morbidity and mortality due to bleeding, which has previously been noted in persistently thrombocytopenic leukemia patients during marrow aplasia. Patients were given Gamimmune (Cutter Biological) 0.4 gm/kg/d IV infusions for five consecutive days. No complications directly attributable to the gamma globulin were noted. One patient died of massive intracerebral bleeding after only two days of the infusions. No satisfactory one-hour platelet increments were noted following random donor platelet transfusions in this individual. An autopsy revealed the presence of disseminated aspergillosis. The other four patients received the full five-day course of gamma globulin. One of these patients subsequently died of massive intracerebral bleeding despite the gamma globulin infusions and a splenectomy prior to the onset of platelet refractoriness. No patient experienced a satisfactory one-hour platelet count increment following either random donor or HLA-matched platelet transfusions until signs of marrow recovery from the chemotherapy induced aplasia. One patient had a rise in platelet count from 8,000 to 22,000/μL following a single ten-unit HLA-matched platelet transfusion but was refractory to subsequent matched platelet transfusions. No other patient had a rise in platelet count above 5,000/μL.

Our patients were somewhat different from those of Schiffer and colleagues, in that our patients were undergoing induction chemotherapy, were febrile, possibly septic, received drugs that could alter platelet survival in vivo, and were unresponsive to HLA-matched platelet transfusions prior to the infusion of gamma globulin.

Our limited experience supports that of Schiffer et al and demonstrates that the incidence of serious bleeding and response to platelet transfusion is not appreciably changed by high-dose IV gamma globulin in patients undergoing induction therapy for acute leukemia. It is of interest that our single patient with CML in lymphoid blast crisis who received vincristine and prednisone as induction therapy during the gamma globulin infusions did not exhibit any change in platelet refractoriness with these therapeutic modalities, which have been successful for thrombocytopenia due to autoimmune thrombocytopenic purpura (ITP). This case, and the findings of Hogge et al, suggests that alloimmune platelet destruction in leukemic patients is fundamentally different from the autoimmune destruction in ITP.

Previous studies have reported a beneficial effect of high-dose IV gamma globulin therapy in some alloimmunized patients. In each of these patients, there was a rise in platelet count to >20,000/μL, generally considered a “safe” level, with cessation of bleeding in one instance. In each of these patients, the platelet half-life was short, with return to pretransfusion platelet counts at approximately 24 hours. One patient was receiving chemotherapy and died of candida sepsis several days after the gamma globulin infusions. These preliminary reports fail to provide the necessary follow-up to determine the duration of platelet responsiveness in individuals following a single course of high-dose IV gamma globulin.

REFERENCES

High-dose intravenous gamma globulin in alloimmunized platelet transfusion recipients [letter]

C Knupp, JK Chamberlain and SO Raab