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Title: How Many Platelets Are Enough

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How many platelets are enough? That is a constant question from patients with ITP. We know that platelets are essential to prevent bleeding, but there is confusion and debate about what platelet count is safe, what platelet count is sufficient to prevent bleeding that might be provoked by an accident or surgery, and what platelet count should cause alarm and trigger aggressive treatment. Surprisingly, there are few data on this most fundamental issue. Part of the explanation for the absence of data may be the fact that platelet counts have become routine and accurate only within the past 25 years. Before that, platelet counts were difficult, their accuracy was questionable, and they were performed only when patients had bleeding symptoms suggesting the presence of thrombocytopenia. With routine automated platelet counts, we now have learned that patients with essentially no bleeding symptoms may have very low platelet counts. And as with any observation, it takes almost a generation of physicians to adapt their medical treatment appropriately. The adjustment of medical treatment in America has slowly but surely been the development of a greater tolerance and sense of security with lower platelet counts. For example, many patients are now diagnosed with ITP when they are asymptomatic, simply by the chance observation of a low platelet count on a routine CBC. Adult hematologists are becoming comfortable with withholding treatment for patients who have platelet counts greater than 30,000. Pediatric hematologists may withhold specific treatment with more severe thrombocytopenia, even platelet counts less than 10,000, if the bleeding symptoms are restricted to bruising and purpura. The reason why children may be treated differently than adults is that spontaneous remissions are expected in children; they rarely occur in adults.

There are some data in adults that suggest that risks for major bleeding do not occur until the platelet count is less than 10,000. An intriguing study performed 20 years ago in Seattle carefully quantitated the amount of spontaneous bleeding in patients with aplastic anemia, a disorder in which the bone marrow produces no platelets and treatment often requires marrow transplantation. In this study, a sample of blood was withdrawn from the patients, labeled with a radioactive isotope, and then re-injected. Following the re-injection of the radioactive-tagged blood, all stool samples were collected. Spontaneous bleeding from the intestine could be accurately determined by the appearance of radioactivity in the stool samples. There was no increase of radioactivity in patients with platelet counts greater than 10,000. A sharp increase in the stool radioactivity did not occur until the platelet count was less than 5,000. Data like these have only recently been applied to other diseases.

A 1998 report studied patients with acute leukemia, who always become severely thrombocytopenic with their intensive chemotherapy. Platelet transfusion support is routine, but the platelet count at which transfusions are required is uncertain. The tradition, based on no firm data, has been to routinely administer a platelet transfusion when the platelet count is less than 20,000. This study documented the safety of lowering this platelet transfusion "trigger" value from 20,000 to 10,000.

What does this mean for ITP patients? Our sense is that platelet counts greater than 10,000 are usually safe for normal daily activities. A higher platelet count is required for any surgical procedure, and would be necessary to prevent bleeding with trauma or an accident or to allow the child or adolescent to participate in sports activities which do not involve head trauma. How high this level must be is uncertain, but a commonly used figure is 30,000-50,000. At what level below 10,000 does the risk for major bleeding, such as critical brain hemorrhage become serious? We think that this level is below 5,000, and may approach 0. Still even patients with these extremely low platelet counts rarely have major bleeding.

The importance of these observations cannot be overestimated. Physicians unfamiliar with ITP often become alarmed with even mild thrombocytopenia. Over-treatment is common. Some physicians still treat platelet counts rather than patients! We are actively educating our colleagues to withhold treatment until thrombocytopenia is severe and the risk for significant bleeding is real. This practice avoids the inevitable complications of all current treatments for ITP.