CME CREDIT

ONE MINUTE CONSULT

BRIEF ANSWERS TO SPECIFIC CLINICAL QUESTIONS

Q: For low platelets, how low is dangerous?

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A: Let me turn this question around to ask, "What is a safe platelet count?"

The short answer to my question is that hemostasis requires very few platelets. Circulating platelets may be considered to be "extra reserves." It is the patient with undetectable platelets, or with a platelet count less than 10,000/µL, who may be at risk for dangerous bleeding. But the more complete and correct answer to my question requires information from two other questions:

- *What is the cause of the thrombocytopenia?* and
- *Safe for what?* For childbirth, surgery, or an invasive procedure? Or just for normal activities? Or to prevent spontaneous severe bleeding?

The answers that I provide are my opinions. There are insufficient data to establish firm recommendations or to suggest that others should change their current practice.

WHAT IS THE CAUSE OF THE THROMBOCYTOPENIA?

The risk for bleeding is related to the cause of thrombocytopenia and the patient's associated conditions. Thrombocytopenic patients can be divided into two groups: those who are healthy except for their low platelet count and those who have systemic illnesses.

Immune thrombocytopenic purpura

Patients with immune thrombocytopenic purpura (ITP) constitute the healthy group. Among thrombocytopenic patients, they have the lowest risk for bleeding. Because thrombocytopenia in ITP is caused by increased platelet destruction, most circulating platelets are young and therefore have excellent hemostatic function. Patients with ITP may have very low platelet counts, even less than 10,000/µL, for many years with minimal symptoms.

Severe bleeding is rare; death from bleeding occurred in 1% of patients in two large cohort studies of consecutive patients with severe ITP and follow-up for 5 and 10 years.[1,2] In fact, many patients with ITP describe the adverse effects of their treatments as far worse than any bleeding symptoms they have ever experienced. Deaths from treatment complications may exceed deaths from bleeding.[1]

We have recorded the stories of several patients with ITP on our website, http://moon.ouhsc.edu/jgeorge, to emphasize these observations.

Patients who have platelet counts over 30,000/µL when they are diagnosed with ITP require no treatment and have no risk for clinically important spontaneous bleeding.[1,2] Even many patients with ITP who have severe thrombocytopenia, ie, platelet counts less than 10,000/µL, for whom standard therapies have failed, may be safely observed without further treatment if they have no bleeding symptoms.[3] Patients with ITP require no activity restrictions regardless of their platelet count, except for sensible avoidance of risks for major trauma.

Systemic illnesses

Systemic illnesses, such as aplastic anemia or disorders associated with chemotherapy-induced marrow suppression, are more common causes of thrombocytopenia among hospitalized patients. Although hospitalized patients with systemic illness and thrombocytopenia due to decreased platelet production may have more risk for bleeding than healthy patients with ITP, a platelet count of 10,000/µL or more can provide adequate hemostasis.

Hemostasis requires very few platelets; how few is safe depends on the situation

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Several prospective controlled studies have documented that prophylactic platelet transfusions are not necessary in patients with chemotherapy-induced marrow suppression until the platelet count is less than 10,000/µL—unless the patient has other risks for bleeding.[4]

A cohort study of 2,942 oncology patients who had 79,546 days with platelet counts less than 50,000/µL documented severe bleeding on 1.3% of patient days.[5] Multivariate analysis demonstrated that hypoalbuminemia (probably indicating low levels of coagulation factors) and uremia, but not the platelet count, were significantly related to the risk for bleeding.

The most severe risk for bleeding occurs when thrombocytopenia is associated with other hemostatic defects,[6] such as the coagulation and fibrinolytic abnormalities that occur in patients with liver disease and patients with sepsis and disseminated intravascular coagulation.

Avoid platelet-inhibiting drugs

In all thrombocytopenic patients, it is important to avoid aspirin and other medicines, such as the nonselective nonsteroidal anti-inflammatory drugs, that can impair platelet function.

A platelet count > 150,000/µL is not necessary for any procedure

SAFE FOR WHAT?

The definition of a safe platelet count is related to the hemostatic challenge.

A normal platelet count, ie, more than 150,000/µL, is not necessary for any procedure. A safe platelet count for surgery and invasive procedures is often estimated to be between 50,000 and 100,000/µL.

Low platelet counts at childbirth are commonly encountered because patients with ITP are often young women. A platelet count of 50,000/µL is sufficient to prevent excessive bleeding with delivery.[7] For epidural anesthesia for labor and delivery, anesthesiologists often require a platelet count of over 100,000/µL, but lower platelet counts may also be safe. In one case series, 30 women who had epidural anesthesia for delivery when their platelet counts were 69,000 to 98,000/µL had no complications.[8]

Other clinical observations have documented that platelet counts of 10,000/µL or lower can provide adequate hemostasis for insertion of central venous catheters[5] and for lumbar puncture.[9]

In summary, unless other conditions are present that can increase the risk for bleeding or medicines have been taken that impair platelet function, very few platelets are required to provide adequate hemostasis.

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