Blood Transfusion Indications

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Algorithmic Approach

A. Numerous guidelines on blood transfusion indications have been published with many describing specific thresholds for transfusion within specified clinical scenarios. Most also stress that blood products should only be given when clinically necessary as hemoglobin levels do not guarantee adequate delivery of oxygen to tissue. Indications for blood transfusion may include trauma with massive blood loss (hemorrhage – surgical, traumatic, or nonsurgical), anemia, major surgical operation, cancer patients requiring therapy, massive blood loss or anemia in the setting of pregnancy and childbirth, hereditary disorders like hemophilia and thalassemia, critical illness, and severe burn victims.

B. In the setting of acute hemorrhage with hypovolemia, hematocrit does not immediately correlate with blood loss. In this setting, transfusions are indicated regardless of the hemoglobin or hematocrit given the acute hemorrhage will result in significant ongoing blood loss at the time of presentation [1].

C. Transfusions should be given in patients with symptomatic or life-threatening anemia. Signs of ischemia or symptomatic anemia include orthostatic hypotension or tachycardia not responsive to fluid replacement, myocardial ischemia, angina, or dyspnea, hypoxia, and neurologic changes. Chronic anemia typically presents with additional symptoms such as fatigue. Chronic anemia may occur with chronic blood loss (hepatic disorders, bleeding disorders) or decreased erythropoiesis (malignancies, chemotherapy, other drugs suppressing bone marrow, renal disorders, nutritional deficiencies). No definite triggers have been defined so the decision to transfuse is considered on an individual basis guided by symptoms or functional impairment [1, 2].

D. In hospitalized, hemodynamically stable patients with acute coronary syndrome (i.e., unstable angina, myocardial infarction), the evidence is unclear in support of liberal or restrictive transfusion thresholds. However, most guidelines recommend transfusion for hemoglobin <8 g/dL and considering transfusions with hemoglobin 8–10 g/dL [3–5].

E. In hospitalized, hemodynamically stable patients with preexisting cardiovascular disease, transfusions should be considered with hemoglobin concentrations of 8 g/dL or less if the patient has congestive heart failure or if patients are symptomatic with chest pain, orthostatic hypotension, or tachycardia unresponsive to fluid resuscitation. If a patient is undergoing cardiac or orthopedic surgery,

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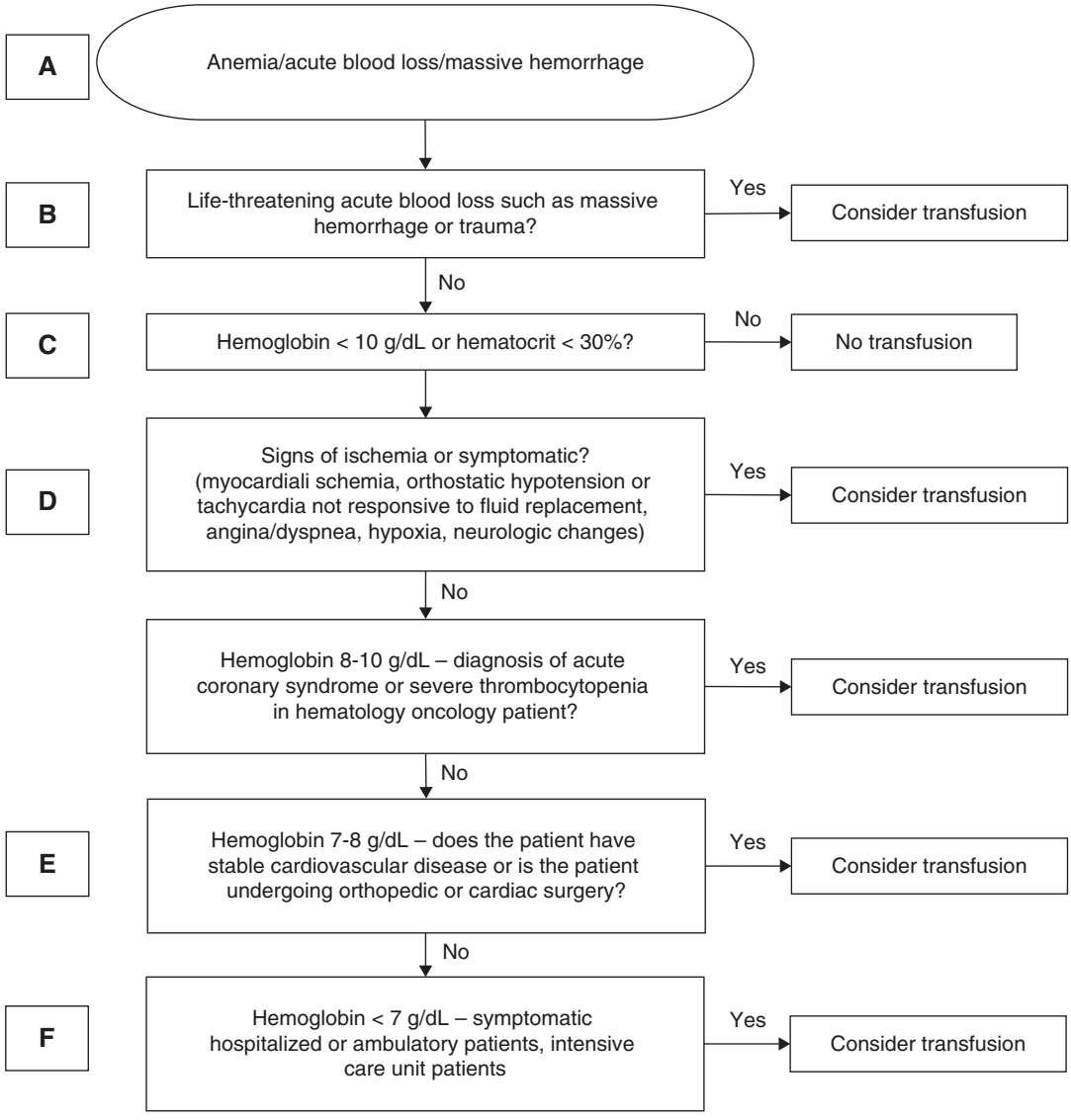
consider transfusion for hemoglobin <8 g/dL based on clinical evaluation of patient and expected blood loss during surgery [2, 5–10].

F. In intensive care unit patients (i.e., nonsurgical/nontraumatic hemorrhage, sepsis), hemoglobin concentrations of 7 g/dL or less should prompt consideration of transfusion in accordance with a restrictive transfusion strategy [1, 2, 11, 12]. In hospitalized, hemodynamically stable patients, hemoglobin concentration and symptoms should be considered in transfusion decisions. In patients with hemoglobin <7 g/dL, transfusion is generally indicated; however decision should still be made based on clinical signs and symptoms [1, 2].



Algorithm 176.1

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