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CLINICAL VIGNETTE

Decision to Transfuse a Patient with Chronic Anemia

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A 40-year-old female presented to establish care. She had history of hyperlipidemia and hypothyroidism but no acute complaints.

Vital signs included blood pressure 125/85; pulse 95; temperature 36.2° and routine labs were drawn. These included: Complete Blood Count, Urinalysis, Comprehensive Metabolic Panel, Lipids, and TSH and a complete physical exam was scheduled.

That evening, the doctor on call was notified of panic results including Hgb 6.8 g/dL (11.6-15.2 g/dL), Hct 24.4% (34.9-45.2%); white blood cell count 4,390 (4,160-9,950); Platelets 212,000 (143,000-398,000), MCV 66.8 (79.3-98.6); MCH 18.4 (26.4-33.4); MCHC 27.5 (31.5-35.5); RDW 17.6% (11.1-15.5%). He called the patient and recommended that she go to the emergency room.

Upon arrival to the ER the patient reported having heavy menses for “years.” She described multiple large clots with menses, with her last menstrual period beginning 2 weeks earlier. She denied any chest pain, shortness of breath, abdominal pain, hematuria, hematochezia, or melena. Vital signs in the ER included blood pressure 136/86; pulse 111; temperature 36.6°. Repeat labs were similar to the earlier results with additional Ferritin of 4 ng/ml (8-180 4 ng/ml), Serum Iron 21 mcg/dL (41-179 mcg/dL), Iron binding capacity 522 mcg/dL (262-502 mcg/dL).

She was transfused one unit of packed red blood cells. Complete blood count following the transfusion showed a Hgb 7.7 g/dL (11.6-15.2 g/dL); Hematocrit 26.5% (34.9-45.2%) and the patient was discharged home. She was instructed to take ferrous sulfate 325 mg daily and follow up with her primary care physician.

The patient continued iron therapy and her hemoglobin, hematocrit, and iron parameters all returned to normal. She did not submit a stool sample for occult blood despite repeated requests. She was referred to gynecology who diagnosed large uterine fibroids and she opted to have a hysterectomy. After hysterectomy her hemoglobin and hematocrit have remained normal despite cessation of supplemental iron therapy.

Discussion

One question raised by this case is whether an asymptomatic 40-year-old woman should be transfused with a hemoglobin of 6.8. Clearly transfusions would be indicated with ongoing acute blood loss from the gastrointestinal tract, traumatic wounds, or other sites. But what about patients with chronic blood loss?

This patient did not have hypotension. She had tachycardia in the emergency room but not when seen in clinic earlier in the day. When initially questioned she denied any acute complaints. After her low hemoglobin was discovered, further questioning revealed she noted decreased endurance and heavy menstrual bleeding.

The Association for the Advancement of Blood and Biotherapies (AABB) recommends that in most patients who are hemodynamically stable, transfusions should be considered when the hemoglobin is less than 7 g/dL.¹

Hébert, et al. conducted a randomized controlled trial to determine critical care transfusion requirements.² They reported that “a restrictive approach to transfusions was at least as effective and possibly superior to a liberal transfusion strategy in critically ill patients with the possible exception of patients with acute myocardial infarction and unstable angina”. In this study patients were transfused if their hemoglobin dropped below 7 g/dL and kept between 7-9 g/dL. The 30-day mortality was similar to patients kept between 10-12 g/dL.²

Carson, et al. studied patients with acute myocardial infarction and anemia. They showed that liberal transfusion (as defined as using less than 10 g/dL as an indication for treatment), “did not significantly reduce the risk of recurrent myocardial infarction or death at 30 days.”³

These studies suggest that a hemoglobin as low as 7 g/dL can be tolerated in acutely and seriously ill patients. Even lower hemoglobin levels might be tolerated by young, otherwise healthy adults. Once this patient was noted to be severely iron deficient with a history consistent with that diagnosis, she might have been discharged with instructions to take iron with close follow up. Certainly, the actions taken cannot be faulted in view of the patient’s tachycardia and the potential for further bleeding. This patient presents a dilemma whether it is safe to wait for iron to be replenished instead of exposing the patient

to the risk of a transfusion. Deferring transfusing this patient would also result in blood being available for other, more needy patients.

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