Asymptomatic Blood Transfusions: Treating a number or treating the patient?

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Story from the Front Lines:

An elderly woman with a history of chronic kidney disease, chronic anemia, and hypertension presented to the hospital with lightheadedness. She reported working in her garden throughout the day, after which she became lightheaded. She denied any other symptoms, including chest pain, dyspnea, palpitations, vertigo, or apparent bleeding. Her vitals signs were a pulse of 85 and blood pressure of 145/85 with orthostatic testing showing a pulse of 95 and blood pressure of 115/80. A rectal exam was performed and normal as well as a negative stool guaiac. Admission labs showed a hemoglobin (Hgb) of 7.4g/dL (her baseline for past year) and creatinine of 2.5mg/dL (one year ago: 1.6). She was given a liter of normal saline, which resolved her lightheadedness but the creatinine remained at 2.5mg/dL and Hgb was 7.2g/dl on repeat testing.

She was admitted for work-up of her acute kidney injury. During her stay she had daily labs. On the day of her planned discharge, hospital day 3, her Hgb was 6.9g/dl and the decision was made to give 1 unit of packed red cells. At this time the patient denied lightheadedness, reported normal bowel movements, and orthostatic testing was normal. After the transfusion she became febrile. Her vitals remained stable, a hemolysis work-up, blood and urine cultures, as well as a chest x-ray were normal. She remained in the hospital for one more day and then discharged with follow-up in nephrology.

Teachable Moment:

Blood transfusions are common in the hospital. Recent studies have shown that a more restrictive approach to transfusions is at least non-inferior to, and in some cases superior to a liberal approach. In both the Upper GI Bleed and TRICC trials, a Hgb trigger of 7g/dl was utilized versus 9 and 10g/dl respectively. In the Upper GI Bleed trial, a mortality benefit was seen with a restrictive approach. In the TRICC trial, a trend toward a mortality benefit was seen and, at the very least, a restrictive approach was non-inferior.

Over the years it has become common for many physicians to utilize the threshold Hgb of 7g/dl as an automatic trigger to transfuse blood in all settings, irrespective of active bleeding or symptoms. In the setting of an active bleed (but not hemorrhage), or the critically ill patient, as seen in the TRICC trial of which 80% of the patients were in-
tubated, a conservative approach is preferred. [2] Further studies have indicated no difference in mortality or hospital stay with a conservative transfusion approach following hip replacement surgery. [3] All of these studies suggest an answer to the conservative versus liberal approach question, but none provide an evidence-based Hgb trigger for transfusion. A review of the literature demonstrates no known optimal threshold for red cell transfusion in the asymptomatic patient.

Blood transfusions do not come without risks. Most are not life threatening, however some can be quite severe. In 2010, greater than 70 facilities started to report to the National Healthcare Safety Network in regards to transfusion reactions. Over a two year period these facilities reported 5,136 adverse events related to just over 2 million transfusions. The majority were allergic (47%) or febrile non-hemolytic (36.1), however 7.2% were severe or life-threatening reactions. [1] Overall, transfusions are a useful tool for the physician that can be life saving in the right situation, however it is important to remember that it is not without its risks.

References


