Question of the Week #42

Patient rights

Emergency care

You work in a 450 bed Level One trauma center in the Labor and Delivery department and typically work weekends so that you can go to school during the week. As the weekend charge person, you are responsible for covering any emergency surgeries during your shift.

The emergency department calls you about a patient who has just been admitted. “Mrs. J” is a 34 year old gravida 1, para 0 at 34 weeks gestation who has been diagnosed with placenta previa at 23 weeks. She has done well on bed rest until this morning, when she started contracting and lost “a lot” of blood. Estimated blood loss is difficult to calculate since the bleeding began while the patient was on the toilet. A hematocrit drawn in the ED is 11g/dL. You quickly set up for an emergency Cesarean section and go to the ED. The ED nurse, “Jack”, gives you report. Vital signs are: BP 90/50; pulse 120 bpm; temperature is 36 °C (96.8 °F); respirations 24/min; oxygen saturation is 90% on 2 liters per nasal cannula. The collection bag for the indwelling catheter contains 20 cc of concentrated yellow urine. The patient has a 16 gauge intravenous catheter in the left antecubital and has already received 2 liters of normal saline. You note that “Dr. O”, the surgeon, and “Dr. A.”, the anesthesia care provider, have already been in, and that a consent has been signed for a Cesarean section, possible hysterectomy. Mrs. J. has marked the box “Refuse blood transfusion” on the consent form.

You go into Mrs. J’s room; she appears pale and is restlessly moving on the gurney. Her husband is with her. You introduce yourself, identify Mrs. J., and confirm the procedure. You tell her, “I noticed that you marked the box for refusing blood products. Can you tell me more about that?” Mrs. J. says, “Both my husband and I are Jehovah’s Witnesses. Dr. A. explained the risks for refusing a blood transfusion, but we’re not changing our minds.”

You ask that Dr. A. and Dr. O. meet you in Mrs. J’s room so that all of you can quickly discuss a plan of care. What options are available for honoring Mrs. J’s request while at the same time providing optimal outcomes for her and her baby? How will the decision(s) affect your nursing interventions? Provide the evidence-based rationale for your response.

Response:

Placenta previa, diagnosed when the placenta is inserted wholly or partially over the lower segment of the uterus, is the most common cause of antepartum hemorrhage (Athanasias et al, 2012). Typically identified as a developing nation issue, obstetric hemorrhage is still the second leading cause of maternal mortality in the United States (Gyamfi and Berkowitz, 2007). Although allogeneic blood transfusions are considered part of the standard of care during obstetric hemorrhage, they carry their own set of risks including ABO incompatibilities, transfusion-associated acute lung injury, and bacterial and viral contamination (Fuller and Bucklin, 2007). For these reasons, all surgeries, regardless of the faith-based beliefs of the patient, should strive to avoid allogeneic blood transfusions and minimize procedure-based blood loss.

Jehovah’s Witnesses are well-known for their strict and literal interpretation of the Bible regarding the practice of blood transfusions. However, not all Jehovah’s Witnesses share the same views regarding acceptable and unacceptable blood products; they may also change their minds over time. Whole blood, red blood cells, platelets, plasma, stored autologous blood, and blood donations are
typically refused by practicing Jehovah’s Witnesses; some will consent to albumin, clotting factors, and autotransfusions (i.e., salvaged blood). Many Jehovah’s Witnesses carry a wallet card outlining their advance directives in terms of accepting or refusing blood products and the appointment of a durable power of attorney. The hospital ministry office and/or a local hospital liaison committee may be contacted to provide support and help answer questions for the patient, her family, and the health care provider team. The Society for the Advancement of Blood Management (www.sabm.org) is an excellent resource for learning more about blood management.

The first goal is to ensure that Mrs. J. fully understands the implications of her decision. Consultation with Mrs. J. should be carried out in an environment conducive to her being able to freely express her wishes and to ask questions. What patients say publicly and what they do privately in the company of their surgeon may vary. Nagarsheth et al (2007) have developed a patient instruction sheet and a surgeon’s check list that assist in developing a bloodless surgery plan of care. Consider a special consent form and identity wrist band for those patients refusing blood.

Even though refusal of treatment by a competent adult is legally binding, the concept of “informed refusal” is still difficult for many health care providers to accept and respect, especially when that refusal can result in adverse consequences or even death. To compound the issue, the health of the fetus is considered. However, the state of pregnancy does not deprive a woman of her right to decide what may or should happen to her body (van Bogaert and Dhai, 2008). In the United States, the fetus has no legal rights.

It is easier to accept the patient’s decisions when she has been well informed related to the risks, benefits, and alternatives to any proposed treatment. Postoperative care, including transfer to the intensive care unit should be thoroughly explained in addition to the proposed operative plan of care. Extended sedation, ventilator support, and muscle paralysis may be needed to conserve oxygen consumption and restore hemoglobin levels after surgery. Discussions related to final determinants of care must be documented and should be signed by both the patient and the surgeon, preferably in the presence of a witness.

A discussion on clinical strategies to avoid blood transfusions follows. Many of these treatments and drugs are only available at major trauma centers/teaching facilities. Some are still in the experimental stages, and in others, studies are lacking specific to the obstetric population.

Recombinant activated Factor VII (rFVIIa) is licensed for use for patients with hemophilia and inhibitory antibodies to Factors VIII or IX. Although not considered a first-line drug, it is increasingly being used “off label” for obstetrical hemorrhage. The use of this drug carries with it a very real risk for thrombosis, a condition which is further exacerbated in pregnancy. It is most effective when combined with other blood products (Padmanabhan et al, 2009; Pinder and Dresner, 2010) as clotting will not occur in the absence of platelets and fibrinogen. For this reason, improved outcomes have been noted when rFVIIa is administered early in the bleeding event (Fuller and Bucklin, 2007). If the patient refuses platelet transfusions, its efficacy if used alone may be diminished.

Most literature related to intraoperative cell salvage practices in OB emergencies comes from our neighbors across the Atlantic Ocean. The risk of vCJD (see QotW # 37) being transmitted via blood transfusions has resulted in a scarcity of donors, especially in England, as anyone receiving a blood transfusion after 1980 is no longer considered eligible to donate blood (Catling, 2007). The UK has thus been on the forefront of utilizing “cellsavers” in the OB setting. Many of the studies related to allogenic blood transfusions are based on the care provided Jehovah’s Witnesses.
During intraoperative cell salvage, blood is aspirated from the surgical field, filtered into a collecting reservoir, “washed”, and then returned to the patient minus clotting factors, platelets, and tissue protein. Traditionally autologous cell salvage during Caesarean sections has been contraindicated due to perceived risks related to amniotic fluid emboli (AFE). However, of more than 400 published cases of cell saver use in obstetrics, not one has identified the incidence of iatrogenic AFE (Pacheco et al, 2011). The American College of Obstetrics and Gynecology advocates its use where massive hemorrhage is anticipated (Liubronu et al, 2011). Current literature suggests that what was previously thought to be an amniotic fluid embolus is actually a rare anaphylactic response to a fetal antigen rather than predictable exposure to amniotic fluid (Catling, 2007; Gallos et al, 2009). Fetal cell “debris” in washed and filtered salvaged blood was found to be at concentrations comparable to that of a preoperative maternal blood sample (Fuller et al, 2007; Liubronu et al, 2011). The use of a separate suction device until the placenta has been delivered and a leukocyte depletion filter to remove fetal cells are felt to safely address the possible risk of amniotic fluid contamination (Allam et al, 2008; Pinder and Dresner, 2010). In addition to the separate suction device and filter, Haemonetics recommends “copious” irrigation of the surgical wound with normal saline before suctioning blood to be re-infused; their literature does not recommend additional wash cycles or increased volumes of wash fluids (Haemonetics, personal communication, June 15, 2012).

Cell salvage machines do not differentiate between maternal and fetal red blood cells so there is an increased risk of maternal alloimmunization in cases of RBC antigen (Rh factor) incompatibilities. If Mrs. J. is Rh negative, she should receive anti-D immunoglobulin based on the results of a Kleihauer Betke test as soon as possible postoperatively.

Disadvantages to intraoperative cell salvage technique include the initial expense of the equipment and staff education; the need to have experienced personnel available 24/7 to set up and run the machine (most facilities require a designated person for this duty); its inability to produce returnable blood quickly enough to address the hypovolemia encountered during massive hemorrhage; and the removal of clotting factors during the washing stage (Pinder and Dresner, 2010).

Acute normovolemic hemodilution (ANH), a form of surgical “blood doping”, involves removing an average of 2-3 units of whole blood preoperatively and replacing that volume with crystalloid or colloid. The premise is that any blood then lost will have a lower red cell content. Once bleeding has been controlled, the patient is given back the previously collected blood, which contains the higher starting hemoglobin level (Gallos et al, 2009). Of course, a hemoglobin “buffer” is necessary to accommodate for the temporary loss of red blood cells; Pacheco et al (2011) recommend a starting value of at least 10g/dL. Therefore, this may not be the treatment of choice for patients who are actively bleeding as it is unclear whether ANH alone has a significant effect on the need for allogeneic blood. It would be necessary to maintain a physical connection with the collection bag, just as is done with cell salvage, to make this a viable option for Jehovah’s Witness patients. An experienced anesthesia care provider team is required to intensively monitor the patient to manage circulating blood volume.

Recombinant human erythropoietin is also showing promise in reducing the need for allogeneic transfusions in those patients who are too anemic for autologous transfusions or who are participating in ANH (Haeri et al, 2012). Its expense and limited role in the acute care setting are drawbacks to its use as a front-line drug.

The use of antifibrinolytic agents (tranexamic acid or aprotinin), although more commonly used during cardiac surgery, may be considered in the management of massive obstetric hemorrhage. They
are best used prophylactically, so their use in an emergency setting may also be limited (Pinder and Dresden, 2010).

Iliac artery balloon placement or embolization of uterine vessels have met with some success in patients identified to be at high risk for bleeding (Pinder and Dreusener, 2010) and may help prevent emergent hysterectomies; however, the extensive use of resources and the logistics of moving a potentially critically ill patient to interventional radiology detract from more wide-spread acceptance of this technology.

Blood substitutes, of which hemoglobin oxygen carriers are proving to be the most promising, are still in Phase III clinical trials and are not yet available in the United States. Their potential use in this population is gaining much interest.

If a “Bloodless Protocol” has not been developed by the facility, these additional interventions will assist in minimizing blood loss for all patients, not only Jehovah’s Witnesses:

- Keep the patient warm and promptly treat acidosis to prevent coagulation dysfunction. Hypothermia and acidosis also affect the activity of rFVIIa.
- Anticipate providing the supplies to start arterial and central venous lines.
- Limit the number of phlebotomy draws to essential tests only; use pediatric blood sample tubes.
- Use point-of-care testing. Pacheco et al (2011) recommend using thromboelastograph (TEG) rather than PT, aPTT, and INR to more accurately assess coagulation status.
- Careful patient positioning can minimize venous congestion of the operative field. Place Mrs. J in the left lateral decubitus position to decrease aortocaval compression.
- Mrs. J’s nasal cannula should be replaced with an oxygen face mask and the rate of oxygen increased. The fetus should be monitored until the start of surgery.
- Employ meticulous hemostatic practices during the surgical procedure.
- Encourage obstetricians’ offices to provide advance notice of high risk OB patients with special needs.

The infrastructure must be in place to effectively support the safe clinical management of the patient at risk for obstetrical hemorrhage. Guidelines related to patients who refuse blood products (see references for resources) must be developed and readily available to the multi-disciplinary team who will care for these patients. Some hospitals employ a special “Code White to mobilize additional resources to care for the hemorrhaging OB patient.

There is a very real possibility of an extended hospitalization and increased risk of morbidity and mortality for Mrs. J. and her baby. A well-trained perioperative team who respects the views and beliefs of people from different cultures provide the best chances for meeting Mrs. J’s right to autonomy and positive outcomes for both mother and baby.

References and Resources


