

## Management of Catastrophic Obstetrical Hemorrhages: Review Questions

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### QUESTIONS

Choose the single best answer for each question.

Questions 1–4 refer to the following case study.

A 31-year-old gravida 3 para 2 patient just had a successful vaginal delivery at 41 weeks and 4 days of gestation. A midline episiotomy is performed in anticipation of a macrosomic infant. Her past medical history is remarkable for hypothyroidism, which is well controlled. Her past surgical history is remarkable for laser laparoscopy for endometriosis 2 years ago. She has no known drug allergies and an unremarkable family history. Her 2 prior pregnancies ended in normal spontaneous vaginal deliveries at term; there were no notable complications. Suddenly, a large quantity of blood gushes from her vagina, and she continues to bleed profusely.

- 1. What is the first thing that should be done?**
  - (A) Observe for 10 more minutes
  - (B) Perform a cesarean hysterectomy
  - (C) Perform a pelvic ultrasound to rule out retained products of conception
  - (D) Check a complete blood count
  - (E) Perform a pelvic examination to assess for uterine atony and the extent of the episiotomy
- 2. What is the first medication that should be ordered to control the hemorrhage based on the most likely diagnosis?**
  - (A) Methergine 0.2 mg intramuscular injection
  - (B) Prostaglandin F<sub>2α</sub> 0.25 mg intramuscular injection
  - (C) Levothyroxine 100 µg orally
  - (D) Pitocin 10 µg in 1000 mL of crystalloid intravenous solution
  - (E) Leuprolide acetate 1.25 mg intramuscular injection
- 3. The patient's hemorrhage is unresponsive to medical management. In addition to infusing blood products, what surgical procedure can be performed initially to control the bleeding and preserve the patient's fertility?**
  - (A) Aortic compression
  - (B) Bilateral uterine artery ligation
  - (C) Cesarean hysterectomy
  - (D) External iliac artery ligation
  - (E) Internal iliac artery ligation
- 4. The surgical procedure performed to control bleeding and preserve fertility did not work; the uterus still is atonic. The anesthesiologist states that the patient is becoming hypotensive. She also is tachycardiac, tachypnic, and has hypothermic blanching. What is the next step in this patient's management?**
  - (A) Aortic compression
  - (B) Bilateral uterine artery ligation
  - (C) Cesarean hysterectomy
  - (D) External iliac artery ligation
  - (E) Internal iliac artery ligation
- 5. Which of the following factors does not increase the risk of postpartum hemorrhage?**
  - (A) Fetal macrosomia
  - (B) Polyhydramnios
  - (C) Postpartum hemorrhage in prior pregnancy
  - (D) Amniotic fluid embolism
  - (E) Hypothyroidism

*(turn page for answers)*

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### ANSWERS AND EXPLANATIONS

1. **(E) Perform a pelvic examination to assess for uterine atony and the extent of the episiotomy.** In cases where there is acute and profuse bleeding following a delivery, immediate evaluation of the episiotomy, lacerations (if any), and a bimanual examination of the uterus is required.<sup>1</sup> Most postpartum hemorrhage cases are due to uterine atony. The uterine fundus is not firm, and the uterus in whole is soft. Observation alone is an inappropriate clinical option. Cesarean hysterectomy is required if medical management fails. If there is a concern of retained products of conception, then a manual intrauterine evaluation takes precedence over an ultrasound examination due to the acuity of the situation. A complete blood count can be done afterwards; it will not help with the acute circumstance.
2. **(D) Pitocin 10 µg in 1000 mL of crystalloid intravenous solution.** Pitocin is the first line of treatment for immediate postpartum bleeding and to achieve uterine contractility. If pitocin seems to be failing, methergine and prostaglandin F<sub>2α</sub> should be used. Levothyroxine is for hypothyroidism management, not for a catastrophic obstetrical hemorrhage. Leuprolide acetate is for myoma management.
3. **(B) Bilateral uterine artery ligation.** Bilateral uterine artery ligation can be performed as a first-line surgical procedure in cases of uterine atony and hemorrhage if the patient desires to preserve her fertility.<sup>2</sup> The sutures are placed where the uterine artery enters the uterus; this is usually at the level of the internal cervical os. Internal iliac artery ligation is

more difficult to perform and therefore should not be used as a first-line option. However, in cases where uterine artery ligation is unsuccessful, this method can be attempted. The external iliac artery has nothing to do with the uterus. Aortic compression can be used if the patient is coding to help resuscitate her during surgery. Cesarean hysterectomy is a final option if other methods fail or if the patient's life is in danger due to the acute nature of the hemorrhage.

4. **(C) Cesarean hysterectomy.** If bilateral uterine artery ligation fails and the patient is becoming clinically unstable, internal iliac artery ligation is performed and it is not successful, or if internal artery ligation cannot be performed and the patient is at risk of dying in an acute hemorrhage setting, then a cesarean hysterectomy is required to save the patient's life.
5. **(E) Hypothyroidism.** Postpartum hemorrhage risk can be increased in the presence of uterine distention from several causes including polyhydramnios, multiple gestation, macrosomia, prior postpartum hemorrhage, and coagulopathy due to amniotic fluid embolism. Thyroid disorders are not known to lead to uterine atony resulting in catastrophic obstetrical hemorrhages.

### REFERENCES

1. Gilstrap LC, Ramin SM. Postpartum hemorrhage. *Clin Obstet Gynecol* 1994;37:824–30.
2. O'Leary JL, O'Leary JA. Uterine artery ligation for control of post cesarean section hemorrhage. *Obstet Gynecol* 1974;43:849–53.

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