

چرا گفتار حکیمانه



Overview of postpartum hemorrhage

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INTRODUCTION



- ▶ Postpartum hemorrhage (PPH) is an **obstetric emergency**.
- ▶ It is one of the top **five causes of maternal mortality** in both high and low per capita income countries, although the absolute risk of death from PPH is much lower in high-income countries.
- ▶ Timely recognition, appropriate resources, and appropriate response are critical for preventing death

TERMINOLOGY

- ▶ PPH occurring in the **first 24 hours after delivery** may be called **primary or early PPH**, and is the subject of this topic.
- ▶ PPH occurring from 24 hours to 12 weeks after delivery is usually called secondary, late, or delayed PPH


DEFINITION/DIAGNOSIS

- ▶ We make the diagnosis of PPH in postpartum women with **bleeding** that is **greater than expected** and results in signs and/or symptoms of hypovolemia
- ▶ **The diagnosis may be delayed in symptomatic women when bleeding is not observed**, such as intra-abdominal bleeding after a vaginal delivery or after closure of the abdomen in a cesarean delivery

Symptoms related to blood loss with postpartum hemorrhage

Blood loss, % (mL)	Blood pressure, mmHg	Signs and symptoms
10 to 15 (500 to 1000)	Normal	Palpitations, lightheadedness, mild increase in heart rate
15 to 25 (1000 to 1500)	Slightly low	Weakness, sweating, tachycardia (100 to 120 beats/minute)
25 to 35 (1500 to 2000)	70 to 80	Restlessness, confusion, pallor, oliguria, tachycardia (120 to 140 beats/minute)
35 to 45 (2000 to 3000)	50 to 70	Lethargy, air hunger, anuria, collapse, tachycardia (> 140 beats/minute)

Adapted from: Rouse J. Massive obstetric hemorrhage. *Obstetrics and Gynecology Clin North America* 2000; 14:1
Graphic 56885 Version 5.0

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- ▶ Multiple other criteria for diagnosis of PPH are in use worldwide
 - ▶ Although PPH is classically defined by the volume of blood loss (ie, estimated **blood loss ≥ 500 mL after vaginal birth** or **≥ 1000 mL after cesarean delivery**), this diagnosis is problematic because bleeding may not be visible externally or blood in collection devices may be mixed with amniotic fluid.
 - ▶ In addition, postpartum morbidity is relatively infrequent among women with blood loss 500 to 999 mL




- ▶ In 2017, the American College of Obstetricians and Gynecologists **revised their definition** of PPH from the classic one described above to: **cumulative blood loss ≥ 1000 mL or bleeding associated with signs/symptoms of hypovolemia within 24 hours of the birth process regardless of delivery route**
- ▶ The new definition should reduce the number of women inappropriately labeled with this diagnosis.
- ▶ despite this new definition, **a blood loss greater than 500 mL** in a vaginal delivery should be **considered abnormal** and should serve as an indication for the health care provider to investigate the increased blood deficit

INCIDENCE

- ▶ The incidence of PPH varies widely, depending upon the criteria used to diagnose the disorder
- ▶ **Sites utilizing quantitative blood loss may report a higher PPH rate than sites using estimated blood loss**
- ▶ The incidence of PPH **using estimated blood loss** has been reported to **be 1 to 5 percent of deliveries**
- ▶ when blood loss is **measured quantitatively**, prospective studies show a PPH rate as **high as 10 percent**



PHYSIOLOGIC MECHANISMS THAT LIMIT POSTPARTUM BLOOD LOSS

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- ▶ Normally, hemostasis occurs upon placental separation because uterine bleeding is controlled by a **combination of two mechanisms**
 - ▶ **contraction of the myometrium**, which compresses the blood vessels supplying the placental bed and causes mechanical hemostasis.
 - ▶ **local decidual hemostatic factors** (tissue factor , type-1 plasminogen activator inhibitor , systemic coagulation factors [eg, platelets, circulating clotting factors]), which cause clotting.
 - ▶ The pathogenesis of most cases of PPH is a disturbance in **one or both of these mechanisms**.
 - ▶ The pathogenesis for most of **the remaining PPH cases** is **loss of intact vasculature (ie, trauma)**.
 - ▶ The potential for massive hemorrhage from pathology in normal physiologic mechanisms at delivery is high because, in late pregnancy, uterine artery blood flow is 500 to 700 mL/min and accounts for approximately 15 percent of cardiac output.

CAUSES OF POSTPARTUM HEMORRHAGE

- ▶ Focal or diffuse atony
- ▶ Trauma
- ▶ Coagulopathy or other bleeding diathesis

Focal or diffuse atony

- ▶ The most common cause of PPH is **uterine atony** (ie, lack of effective contraction of the uterus after delivery)
- ▶ complicates **1 in 40 births** in the United States and is responsible for **at least 75 percent of cases of PPH**
- ▶ The **diagnosis of atony** is generally made when the **uterus does not become firm after routine management of the third stage of labor** (ie, uterine massage and oxytocin).
- ▶ Atony may or may not be associated with retained tissue
- ▶ **Placental disorders** (eg, morbidly adherent placenta, placenta previa, abruptio placentae), **retained products of conception**, and **uterine inversion** result in PPH because they inhibit effective uterine contraction, either focally or diffusely.

Focal or diffuse atony

- ▶ With diffuse atony, **blood loss can be much greater than observed** because a flaccid and dilated uterus may contain a significant amount of blood.
- ▶ With focal localized atony, the fundal region may be well contracted while the **lower uterine segment is dilated (ballooning) and atonic**, which is difficult to appreciate on abdominal examination, but may be detected on vaginal examination.
- ▶ Although diffuse uterine atony is the most common cause of PPH, it is often responsive to administration of additional uterotonic drugs; thus, it is not the most common reason for massive transfusion at delivery

Trauma

- ▶ Trauma-related bleeding can be due to **lacerations** (including uterine rupture) or surgical incisions.
- ▶ **Cervical and vaginal lacerations** may develop as a result of the natural processes of delivery or may be related to provider interventions.
- ▶ They may not be noted until excessive postpartum vaginal bleeding prompts lower genital tract examination, including examination for vaginal and vulvar hematomas.
- ▶ Corpus lacerations may be complete transmyometrial ruptures or incomplete lacerations of the inner myometrium

Trauma

- ▶ at **cesarean delivery**, hemorrhage from the uterine incision is generally caused by **lateral extension of the incision**, which can result from spontaneous tearing of an edematous lower uterine segment during an otherwise uneventful cesarean delivery after prolonged labor, from an incision made too low or not sufficiently curved on the lower segment, or from delivery of the fetus through an incision that is too small.
- ▶ Bleeding from lateral extension of the uterine incision is readily ascertained by inspection of the incision, lateral pelvic sidewalls, and broad ligament.
- ▶ **Retroperitoneal enlargement and bulging of the broad ligament** at cesarean delivery can be signs of retroperitoneal hemorrhage.

Coagulopathy or other bleeding diathesis

- ▶ **Coagulopathy or platelet dysfunction** can contribute to PPH in women with an inherited or acquired bleeding diathesis and can be a result of PPH when there is a severe reduction of clotting factors due to persistent heavy bleeding and hemodilution of the remaining clotting factors.
- ▶ Women with **von Willebrand** disease are especially at risk because von Willebrand factor levels, which typically increase during pregnancy, decline rapidly after delivery
- ▶ **Acute acquired coagulopathies** can be caused by **amniotic fluid embolism, placental abruption, preeclampsia with severe features**, or **HELLP syndrome** (Hemolysis, Elevated Liver enzymes, Low Platelets)

پیار از حسن

نوعه صفا

