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Etiology, Pathogenesis, and Principles of Early Postpartum Hemorrhage

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Abstract: Postpartum hemorrhage is blood loss or loss of more than 1000 ml of blood within 24 hours after delivery with signs or symptoms of hypovolemia. Diagnosis is based on clinical data. Treatment depends on the etiology of the bleeding.

Key words: Uterine atony, Chorioamnionitis, Intra-amniotic infection.

The etiology of postpartum bleeding is a bleeding disorder,

Among the most common causes of postpartum hemorrhage

Uterine atony

Risk factors for uterine atony:

uterine hyperdistension (due to multiple pregnancy, polyhydramnios, fetal anomaly or abnormally large fetus);

long-term labor or problematic labor;

multiple births (birth of 5 or more viable fetuses);

fast work;

Chorioamnionitis

Other causes of postpartum bleeding:

Rupture of the tissues of the birth canal

Extension of episiotomy

Uterine rupture

Bleeding disorder

Remaining placental tissue

Hematoma

uterine inversion (uterine inversion),

Intra-amniotic infection

Placental subinvolution (incomplete involution) (may occur 1 month after birth)

Uterine fibroids can contribute to postpartum hemorrhage. A history of postpartum hemorrhage indicates an increased risk.

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Diagnosis of postpartum hemorrhage

Clinical assessment of blood loss

Vital signs monitoring

Various assessment tools (eg, checklists) are available to assist obstetricians and health care providers in the rapid identification and management of postpartum hemorrhage (1, 2). These tools are widely available and can be tailored to meet the needs of a specific patient population.

Treatment of postpartum hemorrhage

Fluid resuscitation and sometimes blood transfusion

Uterine massage

Removal of remaining placental tissue

Genital fissure repair

Drugs that stimulate uterine contractions (eg, oxytocin, prostaglandins, methylergonovine)

Sometimes a surgical biopsy of the lung

The volume of circulating blood is filled intravenously with 0.9% sodium chloride solution up to 2 liters; if this volume is not enough, a blood transfusion is performed.

Treatment of postpartum hemorrhage

Recovery after rupture of the cervix

Recovery after rupture of the cervix

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They try to achieve hemostasis with bimanual uterine massage and intravenous oxytocin. Immediately after the birth of the placenta, oxytocin is injected intravenously at a rate of 125-200 ml / hour (10 or 20 [up to 80] units per 1000 ml of saline). The use of the drug is continued until the uterus shrinks; then the dose of the drug is gradually reduced or the administration is stopped. Intravenous administration of oxytocin is not recommended because it can cause severe hypotension.

In addition, the uterine cavity is examined to detect placental tissue rupture and remnants. The uterus and vagina are also examined; tears stitched. Uterine atony can be reduced by catheter-assisted bladder emptying.

If heavy bleeding persists during oxytocin infusion, 15-methyl prostaglandin F2-alpha 250 mcg IM every 15-90 minutes up to 8 doses or methylergonovine 0.2 mg IM every 2-4 hours (later 03 mg or 2 mg) apply. - 4 times a day for 1 week); During a cesarean section, these drugs can be injected directly into the myometrium. Oxytocin in a dose of 10 units can be injected directly into the myometrium. If oxytocin is not available, heat-resistant carbetocin can be given intramuscularly instead. Prostaglandins are contraindicated in patients with asthma; Methylergonovine is contraindicated in hypertension. Sometimes misoprostol can be administered rectally in a dose of 800-1000 mcg to increase uterine tone.

Uterine tamponade or the use of a Bakri balloon can sometimes stop the bleeding. This cylinder can hold up to 500 ml and can withstand internal and external pressures up to 300 mmHg. Art. If hemostasis cannot be achieved in this way, a Lynch stitch (a suture that compresses the lower part of the uterus), ligation of the hypogastric artery, or hysterectomy is attempted. A uterine rupture requires surgical repair.

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An intrauterine vacuum device can be used to stop bleeding. It uses low-level aspiration to induce uterine contractions, which causes shedding of uterine tissue; As a result, the blood vessels in the myometrium are compressed and the bleeding stops quickly (1). This device consists of an intrauterine ring, an expandable balloon filled with sterile fluid that occludes the cervix to maintain vacuum, and a vacuum connector attached to a tube that connects to a vacuum source. Aspiration is performed within 1 hour after controlling the bleeding.

Blood transfusion is carried out depending on the degree of blood loss and clinical signs of shock. A massive transfusion of packed red blood cells, fresh frozen plasma, and platelets in a 1:1:1 ratio can be performed after consultation with the blood bank (2).

Tranexamic acid may also be used if initial drug therapy fails (1 g IV over 10 minutes).

Links to treatment

1. D'Alton ME, Rood KM, Smid MC, et al.: An intrauterine vacuum hemorrhage control device for rapid treatment of postpartum hemorrhage. Obstet Gynecol 136 (5):1–10, 2020. doi: 10.1097/AOG.0000000000004138

Prevention of postpartum hemorrhage

Diagnosis of prenatal (antenatal) predisposing factors (for example, uterine fibroids, polyhydramnios, multiple pregnancies, hemostasis disorders in the mother, history of early and late postpartum bleeding) and, if possible, their correction.

If a woman has a rare blood type, then blood must be prepared in advance for transfusion that matches this blood type. Delivery should be as smooth as possible with minimal interventions.

After separation of the placenta, 10 units of oxytocin or oxytocin solution (10-20 units per 1000 ml, 125-200 ml/h for 1-2 hours) are injected intramuscularly to reduce uterine contractions and blood loss.

After the placenta is separated, its integrity is carefully checked; if there are defects in the placenta, perform a manual examination of the uterine cavity and remove parts of the placenta. In rare cases, curettage may be necessary.

Within 1 hour after the end of the 3rd stage of labor, it is necessary to monitor the contraction of the uterus and the amount of blood removed from the genital tract.

Basic rules

Before delivery, the risk of postpartum hemorrhage is assessed, including the identification of prenatal risk factors (eg, bleeding disorders, multiple pregnancies, polyhydramnios, abnormally large fetuses, significant reproduction).

Tests for postpartum hemorrhage are widely available and can be tailored to specific patient populations.

The intravascular fluid volume is filled, the laceration of the genital organs is sutured, and the remaining placental tissue is removed.

Massage the uterus and, if necessary, prescribe uterotonics (eg, oxytocin, prostaglandins, methylergonovine).

If bleeding persists, use of an intrauterine vacuum device, intrauterine balloon tamponade, packing, surgical procedures, and transfusion of blood products should be considered.

For women at risk, labor is carried out slowly and without unnecessary interventions.

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