Menstrual Cycle

Topic- based Uworld Questions

Block 1, 2, 7, 8

A 25-year-old woman presents to your office complaining of a seven-week history of amenorrhea. She also states that she has had nausea and vomiting for five weeks. She is sexually active. Her medical and obstetrical histories are unremarkable. Serum hCG level is elevated. Which of the following is the most important direct role of hCG in pregnancy?

A. Inhibition of uterine contractions
B. Induction of prolactin production by the pituitary
C. Promotion and maintenance of implantation
D. Maintenance of the corpus luteum
E. Induction of early embryonic division and differentiation

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- A. Inhibition of uterine contractions (0%)
- B. Induction of prolactin production by the pituitary (0%)
- C. Promotion and maintenance of implantation (19%)
- ✓ D. Maintenance of the corpus luteum (76%)
- E. Induction of early embryonic division and differentiation (2%)

Omitted
Correct answer
D

76%
Answered correctly

01 sec
Time Spent

06/11/2020
Last Updated

Explanation

Human chorionic gonadotropin (hCG) is a hormone secreted by the syncytiotrophoblast and is responsible for preserving the corpus luteum during early pregnancy in order to maintain progesterone secretion until the placenta is able to produce progesterone on its own. Production of hCG begins about eight days after fertilization, and the levels of hCG double every 48 hours until they peak at six to eight weeks gestation. The hCG is composed of two subunits: alpha and beta. The alpha subunit is common to hCG, TSH, LH, and FSH. The beta subunit is specific to hCG, and is used as the basis of virtually all pregnancy tests.

Correct answer
D

Answered correctly

Time Spent

Last Updated

Explanation

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Other biological functions of hCG include the promotion of male sexual differentiation and stimulation of the maternal thyroid gland.

(Choice A) Progesterone is produced in large amounts during pregnancy, and helps to inhibit uterine contractions.

(Choice B) Estrogen, not hCG, is the hormone responsible for induction of prolactin production during pregnancy.

(Choice C) Progesterone is the hormone responsible for preparing the endometrium for implantation of a fertilized ovum, not hCG.

(Choice E) Division of the fertilized egg begins before implantation, and occurs days before hCG secretion begins.

Educational objective:
Human chorionic gonadotropin (hCG) is a hormone secreted by the syncytiotrophoblast and is mainly responsible for the preservation of the corpus luteum in early pregnancy.

Obstetrics & Gynecology	Female Reproductive System & Breast	Human Chorionic Gonadotropin
Subject	System	Topic

A 30-year-old primigravida at 8 weeks gestation comes to the emergency department due to pelvic pain. The patient has had intermittent right lower quadrant pain for the last week, but yesterday it became constant and severe with associated nausea and vomiting. She takes a prenatal vitamin daily and has no chronic medical conditions. Blood pressure is 128/82 mm Hg and pulse is 104/min. BMI is 23 kg/m^2. Ultrasound shows an intrauterine fetal pole measuring 8 weeks gestation with cardiac motion at 160/min. There is free fluid in the pelvis, and the right ovary is enlarged and has decreased blood flow on Doppler. The patient undergoes emergency laparoscopy for ovarian torsion, and the right ovary containing the corpus luteum is removed due to necrosis of the ovary. Postoperative ultrasound shows positive intrauterine fetal cardiac activity and free fluid in the pelvis. Which of the following is the best next step in management of this patient?

A. High-dose folic acid supplementation
B. Intramuscular methotrexate
C. Low-dose aspirin
D. Progesterone supplementation
E. Routine prenatal care only
F. Vaginal misoprostol

Submit

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- A. High-dose folic acid supplementation (2%)
- B. Intramuscular methotrexate (1%)
- C. Low-dose aspirin (2%)
- ✓ D. Progesterone supplementation (54%)
- E. Routine prenatal care only (38%)
- F. Vaginal misoprostol (1%)

Omitted
Correct answer
D

54%
Answered correctly

02 secs
Time Spent

02/27/2020
Last Updated

Explanation

Ovulation occurs when a secondary oocyte is released from the dominant ovarian follicle, leaving behind cells that form an ovarian structure called

Explanation

Ovulation occurs when a secondary oocyte is released from the dominant ovarian follicle, leaving behind cells that form an ovarian structure called the **corpus luteum** (CL). Following fertilization, the CL enlarges and produces high levels of **progesterone**, which thickens the endometrial lining in preparation for implantation. Progesterone also promotes implantation of the embryo and **maintains the pregnancy**. In early pregnancy, the CL is the primary source of progesterone until the placenta takes over production at **10 weeks gestation** (ie, the luteal-placental shift).

If the CL is removed prior to 10 weeks gestation (as in this patient who required an emergency oophorectomy due to ovarian torsion), progesterone levels decrease precipitously; as a result, the pregnancy becomes at high risk for spontaneous abortion **(Choice E)**. Therefore, patients with **corpus luteum removal** prior to 10 weeks gestation require postoperative **progesterone supplementation** (eg, vaginal progesterone) to **prevent pregnancy loss**. This can be discontinued after 10 weeks gestation.

(Choice A) High-dose (4 mg) folic acid supplementation is indicated in patients at high risk for a fetus with neural tube defects (eg, prior affected pregnancy, use of folate antagonist medications). CL removal does not affect the risk of neural tube defects.

(Choice B) Intramuscular methotrexate is a folate antagonist used to treat ectopic pregnancy, which can present with pelvic pain and free fluid in the pelvis (as in this patient). However, this patient has an intrauterine pregnancy; therefore, methotrexate is not indicated.

(Choice C) Daily low-dose aspirin decreases the risk of preeclampsia in high-risk patients (eg, pregestational diabetes mellitus, chronic hypertension). This patient has no chronic medical conditions.

(Choice F) Vaginal misoprostol is a prostaglandin that causes uterine contractions. It is used for medical management of spontaneous abortions or cervical ripening during an induction of labor.

Educational objective:
During early pregnancy, the corpus luteum produces progesterone, which prepares the endometrium for implantation, promotes implantation, and maintains the pregnancy through 10 weeks gestation. Patients who have the corpus luteum removed (eg, oophorectomy) prior to 10 weeks gestation require progesterone supplementation to prevent pregnancy loss.

References

- The role of progesterone therapy in early pregnancy: from physiological role to therapeutic utility.

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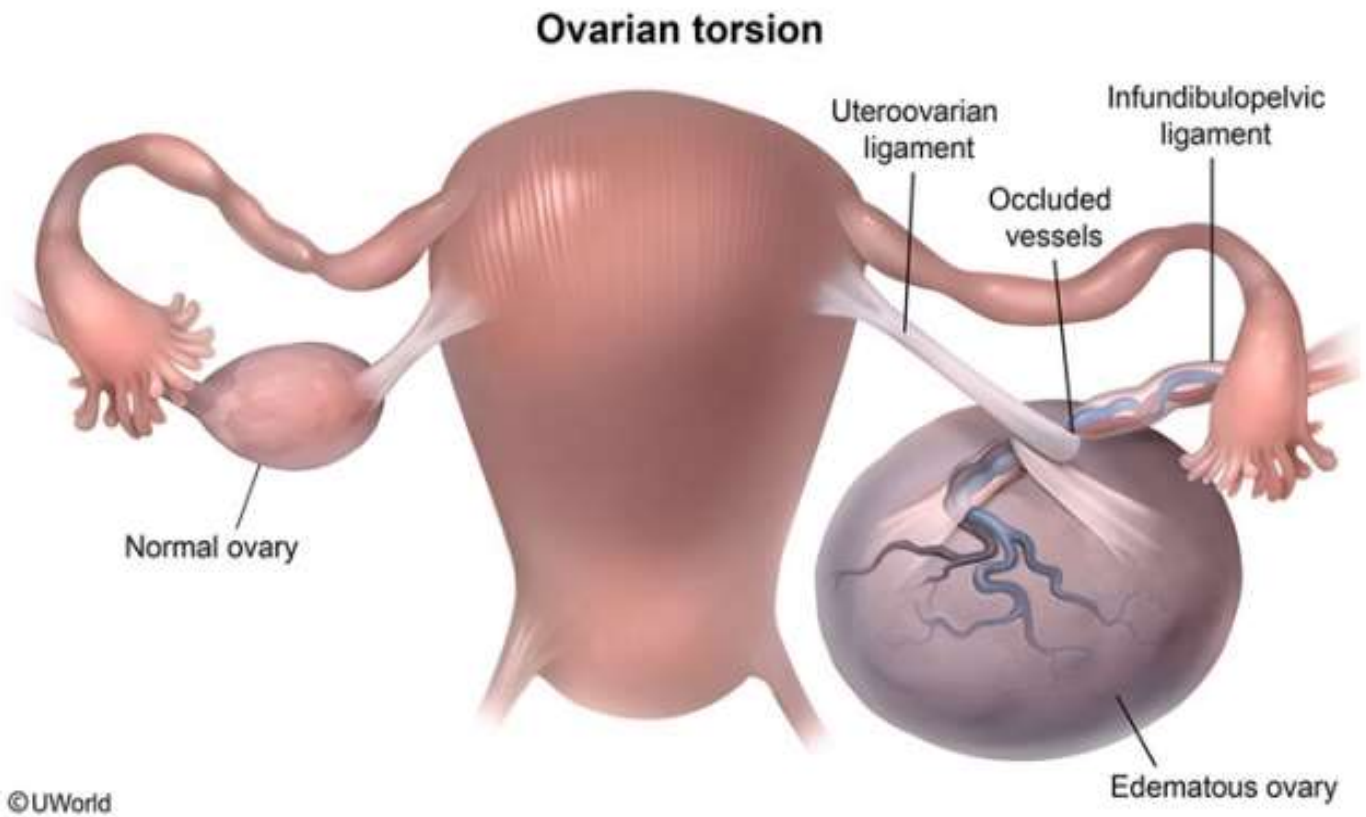

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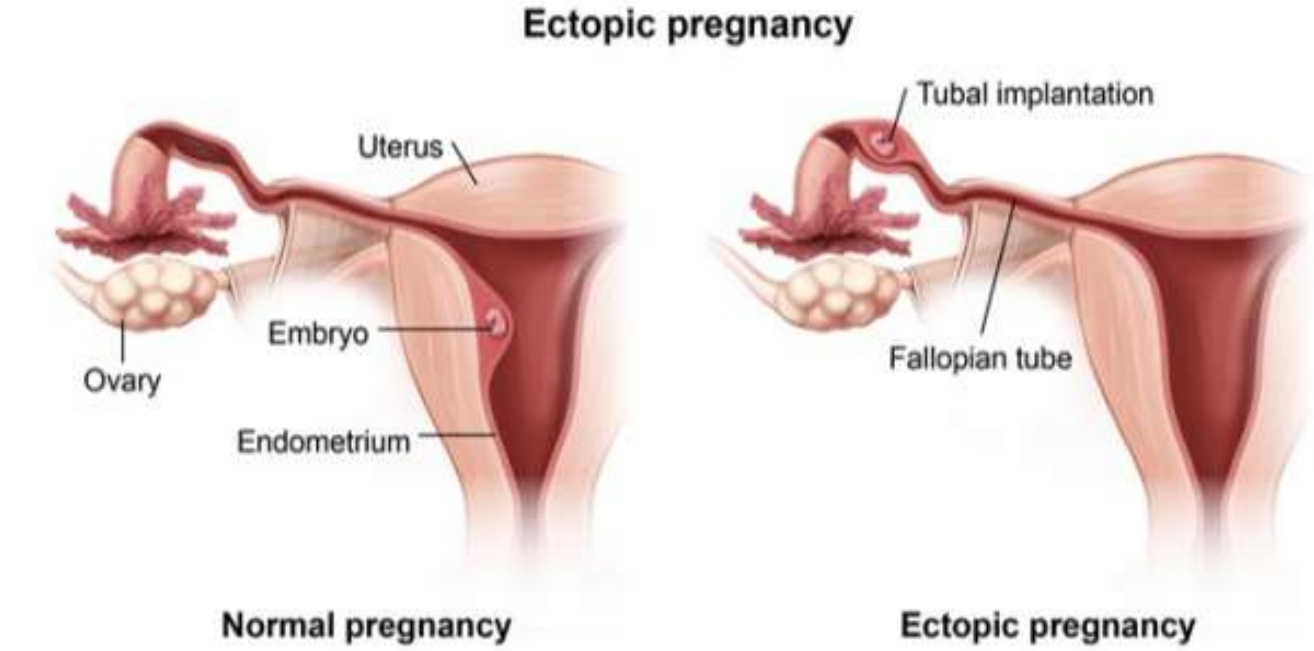

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