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**ACOG Issues Guidelines to Prevent Thromboembolic Events**

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August 26, 2011 — All women undergoing cesarean delivery should undergo thromboembolism prophylaxis at the time of delivery, according to an American College of Obstetricians and Gynecologists (ACOG) [Practice Bulletin](http://journals.lww.com/greenjournal/Citation/2011/09000/Practice_Bulletin_No__123___Thromboembolism_in.39.aspx) published in the September 2011 issue of *Obstetrics & Gynecology*. The new bulletin, entitled "Thromboembolism in Pregnancy," aims to summarize evidence and recommendations regarding risk factors, diagnosis, management, and prevention of thromboembolism, especially venous thromboembolism (VTE), in pregnancy.

"VTE is a major contributor to maternal mortality in this country," coauthor Andra H. James, MD, said in a news release. "The risk of VTE is increased during pregnancy and the consequences can be severe. The recommendations explain how to monitor women for these events, address certain risk factors, and treat suspected or acute cases of VTE. It's important for ob-gyns to adopt these recommendations to help reduce maternal deaths."

Compared with nonpregnant women, pregnant women have a 4-fold to 5-fold increased risk for thromboembolism. About 80% of thromboembolic events during pregnancy are venous, with pulmonary embolism and other VTE responsible for 1.1 deaths per 100,000 deliveries, or 9% of all maternal deaths in the United States.

"In the developing world, the leading cause of maternal death is hemorrhage; however, in developed nations, where hemorrhage is more often successfully treated and prevented, thromboembolic disease is one of the leading causes of death," the Practice Bulletin authors write. "The prevalence and severity of this condition during pregnancy and the peripartum period warrant special consideration of management and therapy. Such therapy includes the treatment of acute thrombotic events and prophylaxis for those at increased risk of thrombotic events."

Physiologic and anatomic changes during pregnancy increase the risk for thromboembolism. Hypercoagulability, increased venous stasis, decreased venous outflow, uterine compression of the inferior vena cava and pelvic veins, reduced mobility, and changes in levels of coagulation factors normally regulating hemostasis all result in an increased thrombogenic state. Risk for deep vein thrombosis during pregnancy is greatest in the left lower extremity.

Other risk factors for VTE unrelated to pregnancy include a personal history of VTE, thrombophilia, obesity, hypertension, and smoking.

The only specific Level A ACOG recommendation (based on good and consistent scientific evidence) is that compression ultrasonography of the proximal veins is the recommended initial diagnostic test when signs or symptoms suggest new onset deep vein thrombosis.

**ACOG Recommendations**

Level B ACOG recommendations and conclusions (based on limited or inconsistent scientific evidence) include the following:

* Heparin compounds are the preferred anticoagulants in pregnancy.
* To minimize postpartum bleeding complications, a reasonable strategy is to resume anticoagulation therapy no sooner than 4 to 6 hours after vaginal delivery, or 6 to 12 hours after cesarean delivery.
* Warfarin, low molecular weight heparin (LMWH), and unfractionated heparin are compatible with breast-feeding because they do not accumulate in breast milk and do not lead to anticoagulation in the infant.

Level C ACOG recommendations (based primarily on consensus and expert opinion) include the following:

* Women with a history of thrombosis who have not been thoroughly evaluated for possible underlying causes should receive testing for antiphospholipid antibodies, as well as for inherited thrombophilias.
* For women with acute thromboembolism during the current pregnancy, or for those at high risk for VTE, including women with mechanical heart valves, therapeutic anticoagulation is recommended.
* For women in whom restarting anticoagulation is planned after delivery, pneumatic compression devices should be left in place until the woman is ambulatory and anticoagulation therapy is resumed.
* In the last month of pregnancy, or sooner if delivery appears imminent, women receiving either therapeutic or prophylactic anticoagulation may be converted from LMWH to unfractionated heparin, which has a shorter half-life.
* Neuraxial blockade should be withheld for 10 to 12 hours after the last prophylactic dose of LMWH, or 24 hours after the last therapeutic dose of LMWH.
* For all women not already receiving thromboprophylaxis, placement of pneumatic compression devices before cesarean delivery is recommended. However, an emergency cesarean delivery should not be delayed for the placement of compression devices.

"Cesarean delivery is an independent risk factor for thromboembolic events — it nearly doubles a woman's risk," Dr. James said. "Fitting inflatable compression devices on a woman's legs before cesarean delivery is a safe, potentially cost-effective preventive intervention. Inflatable compression sleeves should be left in place until a woman is able to walk after delivery or — in women who had been on blood thinners during pregnancy — until anticoagulation medication is resumed."

As a performance measure, ACOG proposes using the percentage of patients evaluated for risk factors for thrombosis at the beginning of pregnancy, during pregnancy, and at the time of delivery.

"Because half of VTE-related maternal deaths occur during pregnancy and the rest during the postpartum period, ongoing patient assessment is imperative," Dr. James concluded. "While warning signs in some women may be evident early in pregnancy, others will develop symptoms that manifest later in pregnancy or after the baby is born."

*Obstet Gynecol*. 2011;118:718-729. [Extract](http://journals.lww.com/greenjournal/Citation/2011/09000/Practice_Bulletin_No__123___Thromboembolism_in.39.aspx)

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