



PIC QUESTION OF THE WEEK: 9/10/07

Q: What are the current guidelines for using enoxaparin in pregnant women with prosthetic valves?

A. During pregnancy, there is a general increase in clotting factors that protects the mother from excessive hemorrhage at the time of delivery. Unfortunately, this compensatory effect also increases the risk of thromboembolism, the leading cause of maternal death during pregnancy. The risk of venous thromboembolism (VTE) is significantly increased during pregnancy and the immediate post-partum period. Enoxaparin (Lovenox) is one of a number of low-molecular weight heparin (LMWH) products now available for the treatment and prevention of several thromboembolic disorders. It produces its effects by inhibiting factor Xa and thrombin. LMWHs are the anticoagulants of choice in pregnancy because they do not cross the placenta and apparently cause no fetotoxicity. Because of warfarin's well-established teratogenic potential and possible complications from heparin therapy, the use of these compounds is now limited. Enoxaparin and other LMWHs are currently labeled as being in Pregnancy Category B. Enoxaparin has been used during pregnancy for: the prevention and treatment of venous thromboembolism; prevention of complications in those with antiphospholipid antibodies or hereditary thrombophilia; prophylaxis in those with mechanical prosthetic valves; and women with histories of complicated pregnancies. There has been some concern regarding the use of enoxaparin in the subgroup of patients with mechanical prosthetic valves. Post-marketing reports had identified seven pregnant women with prosthetic valves who were treated with the drug. Two developed valve thrombosis resulting in fetal and maternal death. This was attributed to inadequate dosing. The increased volume of drug distribution during pregnancy was considered the reason for inadequate anticoagulation and valve thrombosis. The American College of Chest Physicians now recommends the use of *adjusted-dose* LMWHs and careful monitoring of anti-factor Xa levels in all pregnant women with prosthetic heart valves. Their guidelines include an *adjusted-dose* of 1 mg/kg twice daily for enoxaparin and maintenance of anti-Xa levels of 1 – 1.2 U/ml four hours after injection. The *adjusted-dose* of other LMWHs may be found in the College's summary guidelines included in the references below. Enoxaparin and other LMWHs are considered safe and effective for use in the pregnant population.

References:

- Bates S, Greer I, Hirsh J, et al. Use of antithrombotic agents during pregnancy. The Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy: Evidence-Based Guidelines. Chest 2004; 126(suppl 3):627S-644S.
- Ginsberg JS, Chan WS, Bates SM, et al. Anticoagulation of pregnant women with mechanical heart valves. Arch Intern Med 2003;163:694-8.

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