

Obstetric Venous Thromboembolism Prevention for Obese Women

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Disclosures

- I have no conflicts of interest to disclose.

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- Venous Thromboembolism Bundle ACOG II/Safe Motherhood Initiative
 - Venous Thromboembolism Bundle from the National Partnership for Maternal Safety
 - The Society for Obstetric Anesthesia and Perinatology (SOAP)

Outline

- Epidemiology
- What major guidelines recommend in terms of prophylaxis
- Issues related to dosing
- Upcoming recommendations from the American Society of Regional Anesthesia and Pain Medicine (ASRA)

Epidemiology

- Obesity is a well documented risk factor for VTE
- In older medical and surgical populations it may be a relatively modest risk factor
- However, for younger patients obesity may account for more risk

Epidemiology

- One study of obesity and VTE:
 - All patients with obesity: OR of 2.5 for DVT, 2.2 for PE
 - Obese patients <40 years old: OR of 5.2 for DVT, 5.2 for PE
- Nurses Health Study
 - 6-fold increased risk for VTE for patients with BMI >35
- Interaction of obesity with other risk factors
 - Factor V Leiden, prothrombin mutation

Epidemiology

- The United Kingdom's "Saving Mothers Lives" triennial report 2006-2008
 - 9/16 VTE deaths occurred in obese women
 - 14/31 VTE deaths from the prior triennial period occurred in obese women
 - Literature review found increased risk of VTE with obesity ranging from OR 1.7 to 5.3

Mechanisms

- Mechanisms for increased VTE risk in obese patients:
 - Enhanced platelet activity
 - Procoagulant state
 - Impaired fibrinolysis
 - Activation of endothelial cells

Prophylaxis

- Recommendations from major societies
 - Mechanical prophylaxis
 - Pharmacologic prophylaxis
 - Different clinical scenarios
 - Cesarean delivery care
 - Antepartum hospitalizations
 - Vaginal delivery postpartum care

Prophylaxis

- Post-cesarean
 - Early ambulation
 - Avoidance of dehydration

Prophylaxis

- Universal cesarean perioperative mechanical prophylaxis
 - Supported by the American Congress of Obstetricians and Gynecologists (ACOG)
 - American College of Chest Physicians (ACCP) recommendations can be read to also support routine post-cesarean mechanical thromboprophylaxis

Prophylaxis

- Pharmacologic prophylaxis after cesarean delivery for obese patients
 - Supported by the Royal College of Obstetricians and Gynecologists
 - Supported by the National Partnership for Maternal Safety
 - ACCP and ACOG support post-cesarean pharmacologic prophylaxis for high-risk patients
 - Prior VTE events and thrombophilias
 - ACCP BMI ≥ 30 is a minor risk factor

Prophylaxis

- Pharmacologic prophylaxis during antepartum admissions for obese patients
 - Supported by the Royal College of Obstetricians and Gynecologists
 - Supported by the National Partnership for Maternal Safety for hospitalizations >72 hours

Prophylaxis

- Pharmacologic prophylaxis after vaginal delivery for obese patients
 - Supported by the Royal College of Obstetricians and Gynecologists for BMI ≥ 40

Dosage

“Fixed doses of US FDA-approved anticoagulant regimens, including unfractionated heparins, low-molecular-weight heparins and factor Xa inhibitors, may not provide optimal VTE prophylaxis in [obese] patients.”

Dosage

“Although the data are still limited, a rapidly growing body of literature and cumulative evidence suggests that anticoagulant dose adjustments in morbidly obese patients may optimize pharmacodynamic activity and reduce VTE risk.”

Dosage

- Studies in obese non-pregnant patients
 - Low-molecular weight heparin (LMWH)
 - Significant correlation between elevated BMI and low anti-factor Xa levels
 - Unfractionated heparin (UFH)
 - Limited data
 - SC absorption can be affected by amount of adipose tissue

Dosage

- Systematic review: hospitalized obese patients
 - 10,313 patients
 - Research evidence does not allow a definitive conclusion about optimal dosing
- Systematic review: bariatric surgery
 - Data on dosing is poor
 - 5000U UFH TID or 30-40mg enoxaparin BID are reasonable strategies for prophylaxis

Dosage

- Non-obstetric society recommendations:
 - American College of Chest Physicians (ACCP)
 - Obese patients may require increased doses of LMWH/UFH (dose not specified)
 - American Society for Metabolic and Bariatric Surgery (ASMBS)
 - “No class I evidence to provide guidance regarding the type, dose, or duration of VTE prophylaxis”

Dosage

- Pregnancy pharmacodynamics
 - Increased renal clearance
 - Decreased anti-Xa activity in pregnant compared to non-pregnant patients

Dosage

- Royal College of Obstetricians and Gynaecologists
 - “There are no data to guide appropriate doses of LMWH for obese pregnant or puerperal women.”

Dosage

- RCOG prophylactic dosing enoxaparin:
 - 50-90kg 40mg daily
 - 91-130kg 60mg daily
 - 131-170kg 80mg daily
 - >170 0.6mg/kg/day
- Doses for women >90kg may be in divided doses

Dosage

- American College of Chest Physicians
 - Specific dosage recommendations not made for obese pregnant patients in 2012 guidelines
- ACOG Thromboembolism in Pregnancy Practice Bulletin
 - Recommendations for trimester-based dosing of prophylactic UFH
 - ACOG notes that “at extremes of body weight, modification of dose may be required.”

Dosage

- Appropriate dosage of UFH for obese obstetric patients?
 - 5000U SC BID?
 - 5000U SC TID?
- Appropriate dosage of enoxaparin for obese obstetric patients?
 - 40mg SC daily?
 - 30mg SC BID?
 - 40mg SC BID?
 - Weight based dosing?

Dosage

- Ultimately we don't have data on optimal prophylactic dosing for obese patients
- Observational data evaluating risk for obese patients for VTE in the setting of lower dose prophylactic regimens is needed
 - Are obese patients having events while on lower doses of pharmacologic prophylaxis?

ASRA Recommendations

- The American Society of Regional Anesthesia and Pain Medicine (ASRA) is preparing new guidelines on neuraxial anesthesia and anticoagulation
- Preliminary recommendations are only available on an “App” that can be purchased
- These guidelines may be more conservative than the most recent recommendations

ASRA Recommendations

- Recommendations include:
 - Waiting 4-6 hours after low dose prophylactic UFH (5000 units BID) to place neuraxial anesthesia
 - Longer time intervals for larger doses of LMWH/UFH
 - Concurrent use of LMWH and NSAIDs is contraindicated after regional anesthesia

ASRA Recommendations

- ASRA recommendations may be an important consideration in:
 - Choosing agent: LMWH vs UFH
 - Choosing dosage
 - Availability of regional anesthesia
 - Minimizing narcotics postoperatively with regards to NSAID use
- Higher doses of pharmacologic prophylaxis may be associated with important trade offs in regards to anesthesia

Summary

- Whether obese post-cesarean patients should routinely receive pharmacologic prophylaxis is an important clinical question
- Optimal dosing of UFH and LMWH for obese obstetrical patients is unclear
- ASRA recommendations may factor into prophylaxis strategies

Questions?

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