Hypercoagulability in Adolescent Gynecology

NASPAG ACRM 2015
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Mission

The Foundation for Women and Girls with Blood Disorders seeks to ensure that all women and adolescent girls with blood disorders are correctly diagnosed and optimally treated and managed at every life stage.

About the Foundation

Undiagnosed, untreated blood disorders in women have medical consequences and unique issues at every life stage.

The Foundation will raise awareness and educate key healthcare providers including:
- Pediatricians
- Family practice physicians
- Internal medicine physicians
- Obstetricians
- Gynecologists
- Hematologists/Oncologists
- Geriatricians
- Nurses
- Social Workers
- Other healthcare providers

The Foundation will translate and disseminate information and research to providers, thereby benefiting women and girls.
Disclosures: Dr. Shannon Bates

- Relationships with commercial interests:
  - **Grants/Research Support:** N/A
  - **Honoraria:** Leo Pharma, Pfizer Canada
  - **Advisory Boards:** N/A
  - **Consulting Fees:** N/A
  - **Other:** Salary support through an endowed chair funded, in part, by Eli Lilly Canada

The content of Dr. Bates’ presentation does not involve products distributed or manufactured by Leo Pharma, Pfizer Canada or Eli Lilly Canada.

Objectives

- After this presentation, participants should be able to:
  - Describe the hereditary thrombophilias and their risks in adolescents
  - Discuss the potential benefits, drawbacks and role of thrombophilia screening
  - Understand the thromboembolic risks of hormonal contraception in adolescents with a hereditary thrombophilia and/or family history of venous thromboembolism (VTE)
Pre- and Post-Test

• Please take a few minutes to fill out the answers to the questions provided
• Your responses will be collected before this presentation
• Evaluation forms and a post-test will be distributed after the presentation
Question 1

• A family history of venous thromboembolism (VTE) increases your patient’s risk of deep vein thrombosis (DVT) or pulmonary embolism (PE) by:
  a. 2-fold ✓
  b. 10-fold
  c. 50-fold
  d. It doesn’t increase the risk

Question 2

• The estimated annual risk of VTE in an 18-year-old who is heterozygous for the factor V Leiden mutation and taking combined oral contraceptives is:
  a. 5%
  b. 10%
  c. 1%
  d. 0.5% ✓

Question 3

• According to the most recent data, injectable progestin increases the risk of VTE by:
  a. 2-fold ✓
  b. 10-fold
  c. 5-fold
  d. It doesn’t increase the risk
Question 4

- Which of the following hormones has the highest risk of VTE?
  a. Levonogestrel
  b. Desogen (√)
  c. Norethisterone
  d. Norgestimate

Question 5

- Which of the following conditions has the highest risk of lifetime VTE?
  a. Factor V Leiden heterozygote
  b. Elevated Factor VIII
  c. Antithrombin deficiency (√)
  d. ANA positive

Case

- 17-year-old female presents for a gynecologic visit. She has concerns about a vaginal discharge. During the course of your history, she reveals she is sexually active. She has had 3 sexual partners and uses condoms inconsistently. She has regular periods. Her last menstrual cycle was 1 week ago.
- She reveals that her mother, who is 39 years of age, was recently diagnosed with a blood clot. She is not sure why this occurred but knows that the clot was in her leg.
- A pregnancy test performed in the office today is negative.
Case

- Major Challenges
  - The patient needs to be on an effective method of birth control.
  - Given her family history, should she have thrombophilia testing?
  - How do you weigh the risks and balances of contraception in this setting?

Epidemiology of VTE in Women

<table>
<thead>
<tr>
<th>Age (y)</th>
<th>Risk in General Population/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;20</td>
<td>1/100,000 → pregnancy, contraception</td>
</tr>
<tr>
<td>20-40</td>
<td>1/10,000 → pregnancy, contraception</td>
</tr>
<tr>
<td>40-80</td>
<td>1/1,000 → hormone replacement</td>
</tr>
<tr>
<td>&gt;80</td>
<td>1/100</td>
</tr>
</tbody>
</table>


Virchow’s Triad: Hypercoagulability

- One of 3 factors predisposing to thrombosis
  - Can result from clinical risk factors or be inherent to the patient.

- hypercoagulability
- stasis
- vessel damage
Hypercoaguable States: Classification

Hereditary
- Antithrombin (AT) deficiency
- Protein C (PC) deficiency
- Protein S (PS) deficiency
- Factor V Leiden mutation
- Prothrombin (G20210A) mutation
- Dysfibrinogenemia

Acquired
- Cancer
- Postoperative state
- Antiphospholipid antibodies
- Drugs (e.g. OCP)
- Pregnancy, puerperium
- Advanced age

Mixed
- Hyperhomozygoteinemia
- ↑ factor VIII

Hereditary Thrombophilia

- XIa
- Protein C & S
- Antithrombin
- TF + VIIa
- Protein C & S
- IXa
- (VIIIa)
- (prothrombinase)
- (Prothrombin gene mutation)
- II → IIa → Antithrombin
- Fibrinogen → Fibrin

Hereditary Thrombophilias: Classification

Group I: Inhibitor Deficiencies
- Multiple gene defects
- Examples
  - Antithrombin deficiency
  - Protein C deficiency
  - Protein S deficiency

Group II: Gain of Function
- Single gene defects
- Examples
  - Factor V Leiden/APCR
  - Prothrombin gene mutation (G20210A)
Hereditary Thrombophilias: Observations

General Observations (all estimates approximates)

<table>
<thead>
<tr>
<th>Group</th>
<th>Frequency</th>
<th>Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AT, Protein C, Protein S</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Group I</td>
<td>Homozygous</td>
<td>Often lethal</td>
</tr>
<tr>
<td>Group II</td>
<td>FV Leiden/APCR</td>
<td>1-5%</td>
</tr>
<tr>
<td></td>
<td>Prothrombin mutation</td>
<td>Not lethal</td>
</tr>
</tbody>
</table>

Antiphospholipid antibodies (APLA)

- 1-5% of general population and 10-30% of SLE patients
- Autoantibodies against cell surface glycoproteins + anionic phospholipids
  - Types
    - Lupus anticoagulant (LA) or Nonspecific inhibitor (NSI)
    - Anticardiolipin antibodies (ACA)
    - Anti-β2 glycoprotein I (anti-β2GPI)
  - Classification
    - Primary: spontaneous
    - Secondary: associated with other conditions like SLE, HIV, drugs

Aquired Thrombophilias

- Antiphospholipid antibodies (APLA)
  - 1-5% of general population and 10-30% of SLE patients
  - Autoantibodies against cell surface glycoproteins + anionic phospholipids
    - Types
      - Lupus anticoagulant (LA) or Nonspecific inhibitor (NSI)
      - Anticardiolipin antibodies (ACA)
      - Anti-β2 glycoprotein I (anti-β2GPI)
  - Classification
    - Primary: spontaneous
    - Secondary: associated with other conditions like SLE, HIV, drugs

Thrombosis Risk: Thrombophilia & Age

- Antithrombin
- Protein C
- Protein S
- Factor V Leiden
- No thrombophilia

<table>
<thead>
<tr>
<th>Age (y)</th>
<th>Risk in General Population/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;20</td>
<td>1/100,000</td>
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<tr>
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</tr>
<tr>
<td>40-80</td>
<td>1/1,000</td>
</tr>
<tr>
<td>&gt;80</td>
<td>1/100</td>
</tr>
</tbody>
</table>
Thrombophilia Testing: Reasons

- To "explain" thrombosis
- To change patient management
  - Symptomatic patients
    - To determine duration of anticoagulant therapy
    - To prevent recurrent pregnancy complications
  - Asymptomatic patients (e.g., family members)
    - To modify risk of first VTE (prevent VTE)
    - Avoidance of known predispositions (e.g., OCP)
    - Prophylaxis in higher risk settings (e.g., pregnancy)

Screening is only useful if results will affect management. It is not useful when treatment is otherwise indicated or there is no supportive data.

Thrombophilia Testing: Limitations

- Cost
- Can be unreliable during pregnancy, acute thrombosis, acute illness, or anticoagulant therapy
- Overlapping ranges for normals and heterozygotes with natural anticoagulant deficiencies
- Errors and incorrect interpretation are not uncommon
  - 5-40% of samples, depending on assay and laboratory
- Positive tests do not accurately predict future events
- Negative results do not rule out hypercoagulability
- Potential negative implications of a positive result

1. Jennings I. Semin Thromb Haemost 2005

Thrombophilia Testing: Asymptomatic Patients

- Potential utility only if there is a family member with a known abnormality that tracks with VTE history
- No data showing that testing benefits family members
  - Family history of VTE ↑ risk 2x (even if negative tests)
    - Routine counseling: prophylaxis; VTE signs / symptoms
  - May affect contraceptive management
    - For common inherited thrombophilias, VTE risk with OCP still <1%/year
    - Family members should be counseled before testing
    - Potential benefits and limitations
    - Results should be interpreted by an experienced MD

1. Bezemer ID Arch Intern Med 2008
Contraception: Risk versus Benefit

- The risk of withholding a method of contraception in this instance could outweigh the risk of giving the teen a contraceptive

Combined Oral Contraceptives (COC)

<table>
<thead>
<tr>
<th>Formulation</th>
<th>Estrogen</th>
<th>Progesterone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st generation</td>
<td>Ethinyl estradiol (50-150 µg)</td>
<td>Norethindrone</td>
</tr>
<tr>
<td>2nd generation</td>
<td>Ethinyl estradiol (35-50 µg)</td>
<td>Levonorgestrel</td>
</tr>
<tr>
<td>3rd generation</td>
<td>Ethinyl estradiol (35-50 µg)</td>
<td>Norethindrone</td>
</tr>
<tr>
<td>4th generation</td>
<td>Ethinyl estradiol (30-35 µg)</td>
<td>Norgestrel</td>
</tr>
<tr>
<td>Transdermal</td>
<td>Ethinyl estradiol (20 µg)</td>
<td>Desogestrel</td>
</tr>
<tr>
<td>Vaginal ring</td>
<td>Ethinyl estradiol</td>
<td>Gestodene</td>
</tr>
</tbody>
</table>

Progesterone-only Contraceptives

<table>
<thead>
<tr>
<th>Formulation</th>
<th>Progesterone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injectable</td>
<td>Medroxyprogesterone</td>
</tr>
<tr>
<td>Implantable</td>
<td>Etonogestrel</td>
</tr>
<tr>
<td>Intrauterine</td>
<td>Levonorgestrel</td>
</tr>
<tr>
<td>Oral</td>
<td>Norethisterone</td>
</tr>
</tbody>
</table>
COC and VTE Risks

Non-Oral Hormonal Contraceptives

<table>
<thead>
<tr>
<th>Type</th>
<th>Adjusted RR (95% CI)</th>
<th>Incidence /10,000 exposure years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-use</td>
<td>1.00 (reference)</td>
<td>2.05</td>
</tr>
<tr>
<td>COC: 30-40µg estrogen + levonorgestrel</td>
<td>3.21 (2.70-3.81)</td>
<td>6.22</td>
</tr>
<tr>
<td>Patch</td>
<td>7.90 (3.54-17.65)</td>
<td>9.71</td>
</tr>
<tr>
<td>Vaginal Ring</td>
<td>6.48 (4.69-8.94)</td>
<td>7.75</td>
</tr>
<tr>
<td>Implant</td>
<td>1.40 (0.58-3.38)</td>
<td>1.70</td>
</tr>
<tr>
<td>Levonorgestrel IUD</td>
<td>0.57 (0.41-0.81)</td>
<td>1.38</td>
</tr>
</tbody>
</table>

*Adjusted for age, calendar year and education

Lidegaard O. BMJ 2012

Combined Contraceptives and VTE

<table>
<thead>
<tr>
<th>Group</th>
<th>Estimated VTE Risk/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-users</td>
<td>2/10,000</td>
</tr>
<tr>
<td>Levonorgestrel</td>
<td></td>
</tr>
<tr>
<td>Norethisterone</td>
<td>5-7/10,000</td>
</tr>
<tr>
<td>Norgestimate</td>
<td></td>
</tr>
<tr>
<td>Drospirenone</td>
<td></td>
</tr>
<tr>
<td>Gestodene</td>
<td></td>
</tr>
<tr>
<td>Desogestrel</td>
<td></td>
</tr>
<tr>
<td>Etonogestrel</td>
<td></td>
</tr>
<tr>
<td>Norelgestromin</td>
<td></td>
</tr>
<tr>
<td>Pregnancy (antepartum)</td>
<td>5-20/10,000</td>
</tr>
<tr>
<td>Postpartum</td>
<td>40-65/10,000</td>
</tr>
</tbody>
</table>

Cyproterone Acetate Containing COCs

- Not FDA approved in the US
- Approved in Canada for treatment of moderate to severe acne unresponsive to other treatments
- Health Canada Review (April 2014)
  - Published data and review of Canada Vigilance database
  - Benefits continue to outweigh risks when used as authorized
- SOGC Position Statement
  - Absolute risk of VTE is low and comparable to that of other combined hormonal contraceptives
    - For most women, the benefits outweigh the risks
  - VTE risk should be considered as part of patient assessment
  - Patients should be counselled about signs and symptoms of VTE and need to seek attention should they occur


COCs with Cyproterone Acetate: VTE Risk

- Concomitant use with another hormonal contraceptive
- History of or actual thrombophlebitis or thromboembolic disorders
- History of or actual cerebrovascular disorders
- History of or actual myocardial infarction or coronary arterial disease
- History of cholestatic jaundice, previous or existing liver tumours or active liver disease
- Smoker AND age > 35 years
- Known or suspected carcinoma of the breast or estrogen-dependent neoplasia
- Pregnancy is suspected or diagnosed
- Any ocular lesion arising from ophthalmic vascular disease, such as partial or complete loss of vision or defect in visual fields
- Severe diabetes with vascular changes
- History of migraine with aura
- Very high blood pressure e.g., systolic > 160 or diastolic > 100 mmHg
- Very high blood lipids

The following potential additional risk factors have been discussed with the patient:
- Smoking
- Age over 35 years
- Hypertension
- Diabetes
- Migraine
- Obesity BMI > 30 kg/m2
- Major surgery or a period of prolonged immobilization

Patient has been counselled to seek medical attention if the following symptoms occur:
- Sudden unexplained breathlessness or rapid breathing
- Severe pain in the chest which may increase with deep breathing; sudden cough without an obvious cause (which may bring up blood) – indicating potential pulmonary embolism.
- Severe pain or swelling in either leg that may be accompanied by tenderness, warmth or changes in the skin colour such as turning pale, red or blue which may indicate a deep vein thrombosis.
- Chest pain, often acute, but may include just discomfort, pressure, heaviness, upper body discomfort, radiating to back, jaw, throat, or arm together with feelings of indigestion or choking, sweating, nausea, vomiting or dizziness. These symptoms could indicate a heart attack.
- Face, arm or leg weakness or numbness, especially on one side of the body; trouble speaking or understanding; sudden confusion; sudden loss of vision or blurred vision; severe headache/migraine that is worse than normal. This may indicate a stroke.

Frequent Questions

- Is an inherited thrombophilia truly an absolute contraindication to combined oral contraceptives?
- Are all progestin-only contraceptives safer?
- Are combined oral contraceptives truly contraindicated in women with VTE who are receiving adequate anticoagulant therapy?
Choosing a hormone is easy, right?

How Do You Decide What to Use?

- Guideline documents
  - US Medical Eligibility Criteria for Contraceptive Use
    - Evidence-based guidance on the safety of contraceptive method use for patients with specific characteristics and medical conditions
    - CDC adaptation from WHO Medical Eligibility Criteria
    - Endorsed by American College of Obstetricians and Gynecologists (ACOG)
    - ? No longer being updated
  - American College of Obstetricians and Gynecologists (ACOG)
    - Committee on Gynecologic Practice Opinions
  - Society of Obstetricians and Gynaecologists of Canada (SOGC)
    - Position Statements

US Medical Eligibility Criteria 2012

Dept. of Health and Human Services, CDC. MMWR.2010
### Categories of Medical Eligibility Criteria

- **1** = A condition for which there is no restriction for the use of the contraceptive method
- **2** = A condition for which the advantages of using the method generally outweigh the theoretical or proven risks
- **3** = A condition for which the theoretical or proven risks usually outweigh the advantages of using the method
- **4** = A condition that represents an unacceptable health risk if the contraceptive method is used

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### VTE Risk and CDC Eligibility Criteria

<table>
<thead>
<tr>
<th>Contraceptive Type</th>
<th>Combined pill, patch, ring</th>
<th>POP</th>
<th>Injection</th>
<th>Implant</th>
<th>LNG-IUD</th>
<th>Copper IUD</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) History of DVT/PE, not on anticoagulant therapy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Acute DVT/PE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) DVT/PE and established on anticoagulant therapy for at least 3 months</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Family history (first-degree relatives)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Major surgery</td>
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<td></td>
</tr>
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<td>f) Minor surgery without immobilization</td>
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<th>Copper IUD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superficial venous thrombosis</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Proximal deep venous thrombosis</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Thrombogenic mutations</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Thrombosis due to hypercoagulable state</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*Dept. of Health and Human Services, CDC, MMWR, 2010*

**Avoidance of Familial COC-Related VTE**

<table>
<thead>
<tr>
<th>Thrombophilia</th>
<th>VTE Risk on COC/y (%)</th>
<th>To Prevent 1 VTE</th>
<th>N to Avoid COC</th>
<th>N to Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>No FHx</td>
<td>0.04</td>
<td>3333</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Positive FHx</td>
<td>0.08</td>
<td>1657</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>AT/PC/PS</td>
<td>Deficient</td>
<td>4.3</td>
<td>28</td>
<td>58</td>
</tr>
<tr>
<td>Non-deficient</td>
<td>0.7</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>FV Leiden/Prothrombin</td>
<td>With mutation</td>
<td>0.5</td>
<td>333</td>
<td>666</td>
</tr>
<tr>
<td>Without mutation</td>
<td>0.2</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

(Assume baseline VTE risk of 0.01%/y; RR of VTE with OCP use=4 and RR of VTE with positive FHx=2)

*Middeldorp S. Hematol 2011*

**VTE with FVL and/or PGM 20210A**

<table>
<thead>
<tr>
<th></th>
<th>COC</th>
<th>LNG-IUD</th>
<th>Copper IUD</th>
<th>Condom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence of 1st VTE per 100 pill-years</td>
<td>0.55</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>VTE cases per 100,000 pill-years</td>
<td>560</td>
<td>250</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Contraceptive failure rate per 100 woman-years</td>
<td>0.2</td>
<td>0.7</td>
<td>1.4</td>
<td>12</td>
</tr>
<tr>
<td>Unintended pregnancies per 100,000 women-years</td>
<td>200</td>
<td>700</td>
<td>1400</td>
<td>12,000</td>
</tr>
<tr>
<td>Incidence of VTE per 100 pregnancy-years</td>
<td>2.8</td>
<td>2.8</td>
<td>2.8</td>
<td>2.8</td>
</tr>
<tr>
<td>Additional VTE cases</td>
<td>6</td>
<td>20</td>
<td>40</td>
<td>336</td>
</tr>
<tr>
<td>Total number of VTE</td>
<td>556</td>
<td>270</td>
<td>290</td>
<td>586</td>
</tr>
</tbody>
</table>

*Van Vlijmen EFW, et al. Blood 2011*
VTE Risk and Progesterone

<table>
<thead>
<tr>
<th>Contraceptive Type</th>
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<th>Copper IUD</th>
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</tr>
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</table>

Dept. of Health and Human Services, CDC. MMWR. 2010

Is Progestin-Only Contraception Safer?

- Meta-analysis: 8 observational studies (3,052 pts)

<table>
<thead>
<tr>
<th>Agent</th>
<th>Risk</th>
<th>Notes/Comments</th>
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<tbody>
<tr>
<td>All progestin-only</td>
<td>RR: 1.03</td>
<td>(95% CI, 0.76-1.39)</td>
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<tr>
<td>Progestin-only pill</td>
<td>RR: 0.9</td>
<td>(95% CI, 0.57-1.45)</td>
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<tr>
<td>Progestin IUD</td>
<td>RR: 0.61</td>
<td>2 studies only</td>
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<tr>
<td>Injectable progestin</td>
<td>RR: 2.67</td>
<td>(95% CI, 1.29-5.53)</td>
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</tbody>
</table>

* Comparator: non-users

Mantha S. BMJ 2012

COCs and Treated VTE

<table>
<thead>
<tr>
<th>Contraceptive Type</th>
<th>Combined pill, patch, ring</th>
<th>POP</th>
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Dept. of Health and Human Services, CDC. MMWR. 2010
Menstrual Problems in Anticoagulated Women

- Cohort of 53 women from the Royal Free Hospital (UK; age range 20-50 y) with VTE requiring anticoagulant treatment
- Menses duration prior to anticoagulant administration was 5 days compared to 7 days after commencement of therapy
- 66% reported that they experienced flooding or clots post anticoagulation
- Due to perceived VTE risks with certain hormone therapy, >50% of women changed their contraceptive methods
  - Some were using barrier methods alone while being on a potentially teratogenic medication

Contraceptive Use in Women Receiving Treatment for VTE

- In 2009, CDC undertook a systematic review of this topic
  - 6 articles met inclusion criteria
    - In a case series of 13 patients, DMPA was effective at preventing recurrent hemorrhagic cysts in women receiving anticoagulation
    - In one study, 14/17 women using the LNG-IUD for treatment of menorrhagia while on anticoagulants reported no bleeding
    - One pharmacokinetic study reported no evidence of interactions between warfarin and OCP
    - No complications were reported with any use of hormones
- US Medical Eligibility Criteria acknowledge that when a contraceptive method is used as therapy, rather than to prevent pregnancy, the risk/benefit ratio may be different

Hormonal Contraception in Women Receiving Treatment for VTE

- No published trials with clinical outcomes assessing the risk of recurrent VTE in this patient population
- Theoretically, VTE risk should be dramatically reduced while on therapeutic doses of anticoagulation
  - e.g. Pregnancy
  - ISTH SSC Guidelines (unprovoked or hormonal VTE)
    - Discontinue hormone therapy before stopping anticoagulants
    - Effective alternative contraception in premenopausal women
    - Suggest hormonal therapy can be continued in selected patients if there is a strong clinical indication

References:
2. Dept. of Health and Human Services, CDC. MMWR. 2010
Contraception & VTE: Patient-Centered Approach

- Patient risk stratification
  - Type of thrombophilia
  - Family history
  - Additional risk factors (obesity; age >35 y; tobacco use)
- Patient counselling regarding risks, efficacy, and tolerability of contraceptive options
  - Use absolute risks specific to contraception type
  - Including pregnancy
- Involvement of the patient in informed decision making
  - Consider patient preferences
  - Consider likelihood of adherence

Hormones & Thrombosis: Counselling

- As we counsel our patients about hormone exposure and thrombosis risk we should remind them about the signs and symptoms of which they should be aware
  - Migraines, chest pain, shortness of breath, visual disturbance, unexplained abdominal pain, persistent leg pain and swelling, neurologic deficits
- Patients should be counselled about the need for thrombosis prophylaxis in situations associated with an increased risk of VTE (and the need to remind their MDs of this)

Summary

- Thrombophilias are important to understand
- Thrombophilia testing is a controversial issue
  - It is important to understand the limitations of testing
- Although hormonal therapy increases the risk of VTE, sometimes we need to balance its risks and benefits
  - Guidelines, clinical judgment, and individualized management should be used to make decisions
- Counseling patients is key
  - Absolute risks are most helpful when making clinical decisions
  - Educate patients about thrombosis prevention measures, modifiable risk factors, and symptoms of VTE
Post-Test

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Questions

Thank you  Gracias  Merci

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