How long should I anticoagulate for after DVT or PE?

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## Disclosures

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Objectives

1. Review risk stratification models aiming to help the decision of length anticoagulation therapy for patients with idiopathic/unprovoked venous thromboembolism (VTE)

2. Review the evidence supporting different secondary prevention strategies (anti-platelets, warfarin, novel oral anticoagulant (NOACs))
Who to stop?

1. **Answer is clear** - Discontinue after short term (3 months)
   - Clear temporary provoked
     - Post-surgical, casts, immobilization (>3 days)

2. **Answer is clear** - Continue long-term
   - Ongoing malignancy
   - Recurrent unprovoked VTE
   - Potent thrombophilia (e.g. APLA, anti-thrombin, etc.)

3. **Answer AMBIGUOUS**
   - Unprovoked proximal DVT and/or PE (i.e. major VTE)
   - Weakly provoked
     - Minor trauma, minor immobilization, ante-partum pregnancy, estrogens, prolonged flights, etc.
Mr. MT

50 year old ♂ completes 6 months of anticoagulant therapy for unprovoked proximal DVT.

Physical:
- BMI 25, hyper pigmentation and edema in the affected limb.

Labs:
- US shows a residual non-occlusive popliteal vein thrombus.
- D-Dimer of 200ng/ml while on anticoagulants and 350ng/ml off of anticoagulants 1 month later.
Mr. MT

You would recommend…

A. Discontinue anticoagulants
B. Continue anticoagulants for an additional 6 months
C. Continue anticoagulants an additional 1 year
D. Continue anticoagulants an additional 2 years
E. Continue anticoagulants indefinitely
Duration of anticoagulation for unprovoked VTE?

1. One of the most important unanswered questions in clinical management of VTE
   - Short term (3-6 months) or forever
   - ACCP guidelines increasingly suggests longer term
     - Unless high bleeding risk (but don’t tell us how to determine bleeding risk)
     - Not universally accepted

2. Clinicians/Patients
   - Balance 0.9-2.0% per year risk of major bleed with VKA, lifestyle (diet, monitoring, costs etc)
Oral anticoagulants are very effective at preventing recurrent VTE (>90% relative risk reduction) in “unprovoked” VTE... while on therapy

Major Bleed events are 3x more likely to be fatal (CFR= 11.3%; 95% CI 7.5-15.9)

Major VTE events (CFR= 3.6%; 95% CI 1.9-5.7)

Decision ambiguous if long-term risk of recurrent VTE between 2.5-6.5% per year (95% CI 1.9-5.7)

Single predictors that are not good enough to identify low risk group...

1. Normal D-Dimer off of anticoagulants
   - 3.6% per year
   - ~2 years follow-up


2. Normal Compression Ultrasound at completion of therapy
   - ~6% per year
   - ~1 year follow-up

   Donadini, M., Thrombosis Hemostaisis 2013;109:34-8
Clinical predictive rules – “Men Continue and HERDOO2”

- **Men continue** anticoagulants  
  -13.9% annual risk of recurrent VTE

- **Women with \( \leq 1 \) point** discontinue anticoagulants  
  -1.6% annual risk of recurrent VTE

- **Women with \( \geq 2 \) points** continue anticoagulants  
  -14.1% annual risk of recurrent VTE

**HERDOO Predictors**
- Hyperpigmentation or Edema or Redness (HER) on exam either leg
- Vidas D-Dimer \( \geq 250 \)
- Obesity, BMI \( \geq 30 \)
- Older age \( \geq 65 \) years

Rodger M, CMAJ 2008;179(5):417-26
Clinical predictive rules – “DASH Score”

DASH Score ≤1
3.1% annual risk of rVTE (95% CI: 2.3-3.9%)
51.6% of study patients

DASH Score = 2
6.4% annual risk of rVTE (95% CI: 4.8-7.9%)

DASH Score ≥3
12.3% annual risk of rVTE (95% CI: 9.9-14.7%)

DASH Predictors
- Abnormal D-Dimer after stopping anticoagulants=2 points
- Age < 50 years= 1 point
- Male Sex= 1 point
- Hormone associated index VTE= -2 points

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You would recommend...
1- Discontinue anticoagulants
2- Continue anticoagulants for an additional 6 months
3- Continue anticoagulants an additional 1 year
4- Continue anticoagulants an additional 2 years
5- **Continue anticoagulants indefinitely**
Oral anticoagulation (warfarin vs. NOAC) or ASA?
Take Home Messages

• Predictors that identify patients with long-term risk of <3% annual risk should be used to discontinue anticoagulants

• To risk stratify unprovoked VTE patients
  • Don’t use:
    • D-Dimer off anticoagulants alone
    • Residual vein imaging alone
  • Consider:
    • “Men Continue and HERDOO2”
    • DASH Score
**Duration of Anticoagulation after DVT/PE**

**PRACTICE POINTS: Typical Provoking factors**
- A post operative state or trauma (within 4 weeks)
- Immobilization >3 days (casting, hospitalization, bed ridden)
- Active malignancy
- Peripherally inserted central catheter (PICC) or central venous access device (CVAD)

**Risk of major bleeding on anticoagulation**: ~0.9-2% per year

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**Venous Thrombosis (VTE)**
- Proximal deep vein thrombosis (DVT) and/or pulmonary embolism (PE)

**Provoked?**

- **YES**
  - 3 months of anticoagulation then STOP (provided that provoking factors have been mitigated)
  - *Caveat:* Ongoing active malignancy, long-term anticoagulation recommended as per oncology guidelines

- **NO**
  - Referral to CCMB Hematology
    - Recurrent unprovoked VTE
    - Potent thrombophilia (APLA, anti-thrombin deficiency)

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**Other indications for Referral to CCMB Hematology**
1. Thrombosis at unusual sites
2. Recurrent thrombosis despite adequate anticoagulation

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**Long-Term Anticoagulation**

- 1st episode of unproved VTE
- DVT or PE with minor provoking factor: Minor trauma, minor immobilization, antepartum pregnancy, estrogens, prolonged flights, etc

**Duration of anticoagulation determined based on:**
1. HERDOO2 and DASH score
2. Patient preference after counseling
3. Risk of bleeding

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Pathways are subject to clinical judgment and actual practice patterns may not always follow the proposed steps in this pathway.
When to consider referral to hematology

- Unprovoked VTE
- Thrombosis at unusual sites
- Recurrent thrombosis despite adequate anticoagulation
Questions?

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