CARDIOVASCULAR CENTER POCKET GUIDE

Use of Warfarin in Thrombotic Cardiovascular Disease

Anticoagulation for Atrial Fibrillation/Atrial Flutter

Start

- Mitral Stenosis
- Prothetic Valve

Yes

- Warfarin

No

Assess major risk factors (RF)
- Prior TIA or stroke
- HTN
- CHF and/or LV dysfunction
- Diabetes
- Prior systemic embolism
- Age > 75

Yes

- Warfarin

No

Age 65 - 75 and no risk factors or structural heart disease

Yes

- Warfarin or ASA 325mg/day

No

Age < 65 and no risk factors or structural heart disease

- ASA 325mg/day

Use of Heparin in New-Onset Atrial Fibrillation (AF)

- Hospitalized pts with unfractionated heparin (target APTT 50-70s) to facilitate potential cardioversion prior to discharge
- If warfarin is started and pt is discharged from hospital in AF or is an outpatient, consider Low Molecular Weight Heparin (LMWH) until INR therapeutic if 1 of following risk factors are present:
  - Intracardiac clot or history of cardioembolism
  - Mitral stenosis
  - Mechanical heart valve
  - CHF
  - LVEF < 35%, LA > 5 cm, or spontaneous echo contrast present

- Anticoagulation not necessary for AF present < 48 hr unless clinical or echo data suggest increased risk of cardioembolism

- Anticoagulation not necessary for AF present > 48 hr

- IV heparin (APTT target 60s range 50-70s) or at least 5 consecutive days of warfarin with target INR of 2.5 (range 2-3)

- Warfarin x 1 mo (INR 2-3) then D/C. (If pt on heparin at time of CV, continue it until INR therapeutic)

- Defe CV, continue heparin until INR therapeutic

- Consider repeat TEE before attempting later cardioversion

Inpatient, or pt for whom deferral of CV for 3 wks is impractical or not possible

- Warfarin (INR 2-3)
- INR therapeutic for 3 weeks

- Warfarin (INR 2-3)

- Successful

- Cardioversion

- Unsuccessful

- No Thrombus

- TEE

- Thrombus Present

Stable

Outpatient

\*Anticoagulation not necessary for AF present < 48 hr unless clinical or echo data suggest increased risk of cardioembolism

\*Continuation of anticoagulation beyond 4 weeks is based on whether the patient has experienced more than one episode of atrial fibrillation/flutter and/or their risk factor status.

Faculty Lead: DB Dyke, J Froehlich
Reference: Chest Volume 126/Number 3 Supplement/Sept. 2004

REV: 01/05, ANT
1. Notify Practice Management of intent to use LMWH (Ph: 764-0589; Fax: 936-0589)
2. Decide on type and dose of LMWH (prescribe 7 day supply with 1 refill)
3. Write order for nurse to educate pt on injection techniques
4. Consult Anticoagulation Service (ACS) to arrange post-D/c anticoagulant management (Fax: 936-8558)
   - Submit referral electronically using ACS website (https://web36.med.umich.edu/CVC/refer.cfm)

Special considerations necessary since LMWH half-life is prolonged in renal insufficiency. Consider IV UFH in hospital. If use LMWH, do so with caution, particularly in elderly or those post-invasive procedure. See PDR for recommendations on dose reductions for LMWH in renal insufficiency for various thrombotic disorders.

**Anticoagulation for Mechanical Prosthetic Heart Valves**

<table>
<thead>
<tr>
<th>Valve Type</th>
<th>Target INR</th>
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<tbody>
<tr>
<td>Bileaflet or tilting disk</td>
<td>2.5 (range 2.0 - 3.0)**†</td>
</tr>
<tr>
<td>Aortic</td>
<td>2.5 (range 2.0 - 3.0)**†</td>
</tr>
<tr>
<td>Mitral</td>
<td>3.0 (range 2.5 - 3.5)†</td>
</tr>
<tr>
<td>Caged ball or disk</td>
<td>3.0 (range 2.5 - 3.5) + ASA 81mg</td>
</tr>
<tr>
<td>Aortic or Mitral</td>
<td>3.0 (range 2.5 - 3.5) + ASA 81mg</td>
</tr>
</tbody>
</table>

*Assumes pt in sinus rhythm w/ nl LA and LV size/function. If not, use target INR 3.0 (range 2.5 - 3.5).
†For pts w/multiple prosthetic valves, history of thromboembolism, intracardiac thrombus, AF, MI, endocardial damage, enlarged LA, or LV dysfunction, target INR of 3.0 (range 2.5-3.5) and ASA 81mg/day.

**Use of LMWH to Accelerate Hospital Discharge**

Start

Inpatient with thrombotic disorder requiring initiation of warfarin who will be treated with heparin until the INR enters the therapeutic range.

Is Patient ready for discharge before INR therapeutic?

- Yes
  - Use unfractionated heparin (UFH)

- No
  - Assess Renal Function
    - Cr clearance > 30ml/min
      - Use LMWH*
    - Cr clearance ≤ 30ml/min
      - 2 options:
        1) Unfractionated Heparin
        2) LMWH*

*Above decision tree based on treatment with Enoxaparin. Use with caution in high risk individuals, such as severe renal impairment, extreme obesity, low-weight patients, and mechanical prosthetic heart valves. Obtain anti-factor Xa level 2-4 days after starting (draw 4 hours post-injection). Discuss case with anticoagulation service by phone at least 1 day prior to discharge.

**Anticoagulation Unit Consultation:** Phone: 734-998-6944 Fax: 734-998-6945
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