COMMUNITY MEDICINE ASSOCIATES

PROTOCOL

Protocol For: Anticoagulation Management Protocol for MLP and PharmD

Definition: To document written protocol for medication management of patients on anticoagulation medication delegated to Pharm D/MLP.

I. Types of patients that may be managed by this protocol:
   A. Established CMA patients who are placed on anticoagulation management by their physician for various conditions to include (but not limited):
      1. hypercoagulable status
      2. mechanical valve replacements
      3. valve disease repairs
      4. deep venous thrombosis
      5. pulmonary embolism
      6. congestive heart failure and cardiomyopathics
      7. hypertension
      8. angina and post-myocardial infarction
      9. cardiac arythmias
     10. stroke
     11. other clotting disorders

II. MLP and PharmD with whom CMA have collaborative practice will follow attached protocol for medication management related to anticoagulation treatment
   A. Follow attached written protocol
   Slight deviation from the dose adjustment protocol may occur per clinical judgment.
   B. Provide patient instructions regarding warfarin use peri-procedure for bridging therapy with low molecular weight heparin.
   C. Call in new or refill prescriptions for warfarin, enoxapin, and Vitamin K if deemed necessary for appropriate and update medication list accordingly
   D. Document services rendered in patient’s medical records according to UHS policies

III. Support staff working with MLP/PharmD will:
   A. Carry out all orders as appropriate and document in medical records actions taken
   B. Forward visit note via Secure Health Messaging (SHM) to delegating physician (provider) notifying him/her of the medication management performed and the results.

IV. Continuous Quality Improvement: This protocol will be reviewed yearly and revised as needed by the clinical pharmacists and physicians.
I. **STEP 1:** All Patients will have blood pressure and pulse taken by nursing support staff and be asked for the following information

A. Current dosing of warfarin  
B. Last dose of warfarin  
C. Number of doses missed in the last two weeks  
D. Number of extra warfarin doses  
E. Names of new medications  
F. List of over-the-counter products and alternative medicines uses  
G. Recent diet changes  
H. Alcohol intake  
I. Signs & symptoms of deep vein thrombosis, pulmonary embolism, stroke  
J. Signs & symptoms of increased bleeding as epistaxis, gingival bleed, hematuria, melena, ecchymosis  
K. Recent hospitalizations  
L. Recent or future procedures affecting warfarin regimen.

II. **STEP 2:** The INR results will be classified into 3 categories:

A. At goal  
B. Below Goal  
C. Above Goal

III. **STEP 3:**

A. If INR “At goal” no changes will be made to the warfarin regimen unless responses to STEP 1 warrant changes.

B. If INR is “Below Goal” and responses to STEP 1 do not reveal a cause for the subtherapeutic INR, the warfarin dose will be adjusted as follows based on total weekly dose:

<table>
<thead>
<tr>
<th>For Target INR of 2.0 to 3.0, no bleeding</th>
<th>For Target INR of 2.5 to 3.5, no bleeding*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INR</strong></td>
<td><strong>&lt;1.5</strong></td>
</tr>
<tr>
<td>Adjustment</td>
<td>Increase dose 10 to 20%; consider extra dose</td>
</tr>
<tr>
<td><strong>Next INR</strong></td>
<td>4 to 8 days</td>
</tr>
</tbody>
</table>

**For Target INR of 2.5 to 3.5, no bleeding**

<table>
<thead>
<tr>
<th><strong>INR</strong></th>
<th><strong>&lt;1.5</strong></th>
<th><strong>1.5 to 2.4</strong></th>
<th><strong>2.5 to 3.5</strong></th>
<th><strong>3.6 to 4.5</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment</td>
<td>Increase dose 10 to 20% consider extra dose</td>
<td>Increase dose 5 to 10% &amp;</td>
<td>No change</td>
<td>Decrease dose 5 to 10% consider holding one dose</td>
</tr>
<tr>
<td><strong>Next INR</strong></td>
<td>4 to 8 days</td>
<td>7 to 14 days</td>
<td>No. of consecutive in-range INRs x 1 wk (max: 4 wks)</td>
<td>7 to 14 days</td>
</tr>
</tbody>
</table>

* See reverse side for further guidance
+ If INR is 1.8 to 1.9 or 3.1 to 3.2, consider no change with repeat INR in seven to 14 days
++ For example, if a patient has had three consecutive in-range INR values, recheck in 3 weeks
& If INR is 2.3 to 2.4 or 3.6 to 3.7, consider no change with repeat INR in seven to 14 days.

Extra warfarin doses may be given if necessary as determined by clinical judgment of pharmacist.

C. If INR is “Above Goal” and responses to STEP 1 do not reveal a cause for the supratherapeutic INR, the warfarin dose will be managed accord in the following
TABLE 1:
1. Where the table asks for a “lower dose” the warfarin dose will be lowered as follows:
   a. The total weekly dose of warfarin will be calculated
   b. The total weekly dose will be DECREASED by 5-20%
      i. The specific daily dose will be determined taking into consideration
         the ease of regimen, need for new table strength, patient preference,
         provider judgment.
      ii. If the INR is very high, (e.g., >9-10), the dose may be lowered by
         >20%.

<table>
<thead>
<tr>
<th>INR</th>
<th>Patient Situation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;3 and &lt;5</td>
<td>And No bleeding or need for rapid reversal</td>
<td>Lower dose, OR omit next few warfarin doses and restart at lower dose when INR approaches 3. If INR is only minimally above the therapeutic range, then no dose reduction may be required at all</td>
</tr>
<tr>
<td>&gt;5 and &lt;9</td>
<td>And No bleeding and no risk factors</td>
<td>Omit 1-2 doses of warfarin, monitor INR more frequently. Restart warfarin at a lower dose</td>
</tr>
<tr>
<td>And</td>
<td>No bleeding but at risk of bleeding</td>
<td>Omit one dose of warfarin and five oral vitamin K1 (1-2.5 mg).</td>
</tr>
<tr>
<td>And</td>
<td>In need of rapid reversal</td>
<td>Patients will be referred for acute evaluation and management to the Express Med Clinic or the Emergency Department (ED)</td>
</tr>
<tr>
<td>&gt;9 and &lt;20</td>
<td>And No clinically significant bleeding</td>
<td>Omit next several warfarin doses, and give oral vitamin K1 (3-5 mg), with the exception that the INR will be reduced substantially by about 24-48 hours. Monitor INR closely and repeat vitamin K1 if necessary. Resume warfarin at a lower dose when INR is in the desired range.</td>
</tr>
<tr>
<td>&gt;9</td>
<td>And Serious bleeding or warfarin overdosage</td>
<td>Patients will be referred for acute evaluation and management to the Express Med Clinic or the Emergency Department (ED)</td>
</tr>
</tbody>
</table>

Adapted from 55th Consensus Conference on Antithrombotic Therapy: Chest supplement Nove 1998; 114:458S

V. STEP 4:
A. The patient will be counseled regarding their warfarin therapy and their next follow-up.
   The patient will also be provided with anticoagulation education as necessary.
B. Assure that all patients have baseline CBC (within four weeks before starting anticoagulation) and CBC every six months.
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