Reducing Anticoagulants Adverse Drug Events—Warfarin

Prescriber Tips:

• Before prescribing anticoagulants, providers should weigh the risk of thrombosis against the risk of bleeding (CHA2DS2-VASc score to assess stroke risk, HAS-BLED score to quantify hemorrhage risk).\(^1,2\)

• Patients may be referred to an anticoagulation clinic (AC) at any point during anticoagulation therapy.\(^3,4,5\)
  – Studies have shown ACs lead to better anticoagulation control and outcomes.
  – Treatment should be individualized and based on shared decision making. Each patient’s values and preferences should be addressed to help improve adherence.\(^1,5\)

• Record indication for warfarin therapy; target International Normalized Ratio (INR) range and duration of treatment for every patient.
  – Most common therapeutic range for treatment with warfarin is 2.0–3.0.\(^3\)

• With each visit: assess for significant drug and dietary interactions, evaluate patient’s warfarin therapy understanding, and incorporate patient education as necessary, as well as communicate INR results and dosing decisions.
  – Monitoring is influenced by INR results, patient’s compliance, changes in health status, addition/discontinuation of medications, changes in diet, and/or dose adjustment decisions.
  – Assess patient’s anticoagulant therapy knowledge by interviewing the patient or having the patient complete a warfarin questionnaire.
  – Provide methods for alerting others that the patient is anticoagulated (i.e., medical alert bracelet, Coumadin user card).

<table>
<thead>
<tr>
<th>Managing Challenging Situation(^5)</th>
<th>Recommendations:</th>
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<tbody>
<tr>
<td>Patients who miss scheduled INR tests</td>
<td>Reminders delivered via telephone, text message, email, or regular mail can help patients remember appointments.</td>
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<tr>
<td>Patients who struggle with following warfarin dose instructions</td>
<td>Use of pillboxes, calendars, electronic reminders, and written instructions can help patients remember to take medications as prescribed.</td>
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• With each visit: patients should be given a written dosing schedule for their anticoagulation therapy which takes into account:
  – Brand/generic name, dosage adjustments, tablet strength, tablet color, INR results, and next appointment date, as well as a telephone number to call with questions or problems.

• Avoid concomitant treatment with:\(^3\)
  – Non-steroidal anti-inflammatory drugs (NSAIDs).
  – Antiplatelet agents (except in situations where benefit is known or is highly likely to be greater than harm from bleeding, such as patients with mechanical valves, acute coronary syndrome, and recent coronary stents or bypass surgery).
  – Warfarin interacting drugs are included in Table 1.
Table 1: Preventing Warfarin-Associated ADEs

<table>
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<th>Warfarin</th>
<th>Recommendations:</th>
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| **Patient Education** | • Explain the reason for starting warfarin, how warfarin works, and duration of therapy.  
• Explain the need for routine INR testing and discuss INR target range.  
• Discuss side effects of warfarin, drug and food interactions, signs/symptoms of bleeding or clotting, and any necessary lifestyle changes.  
• Explain when to take warfarin and what to do if the patient misses a dose.  
• Discuss when to contact provider, AC, or when to go to the emergency department.  
• Stress the importance of notifying all healthcare providers of warfarin treatment.  
• If the patient has extended travel plans, ensure a sufficient supply of warfarin is available and arrangements have been made for ongoing INR monitoring. |
| **Drug Interactions** | • Potentiation of Drug Effect (Increased INR):  
Amiodarone, amoxicillin, aspirin, cephalosporins, cimetidine, ciprofloxacin, citalopram, clarithromycin, Clopidogrel, cotrimoxazole, entacapone, erythromycin, fenofibrate, fish oil, fluconazole, fluvastatin, gemcitabine, gemfibrozil, levofl oxacin, lovastatin, metronidazole, miconazole (suppository, gel), NSAIDs, propafenone, propranolol, simvastatin, selective serotonin reuptake inhibitors (SSRIs), trimethoprim/sulfamethoxazole (TMP-SMX), tetracycline, tramadol, voriconazole |
| **Inhibition of Drug Effect (Decreased INR):**  
Barbiturates, bosentan, carbamazepine, cigarette smoking, chlordiazepoxide, ginseng, griseofulvin, mercaptopurine, multivitamin supplement, nafcillin, phenobarbital, rifampin, secobarbital, St. John’s Wort |
| **Warfarin Management** | • Validated decision support tools are recommended for dosing decisions (i.e., nomograms or computerized dosing programs).  
• Warfarin dose should be adjusted based on INR measurements.  
• Prior to making a dose adjustment, assess dietary changes, drug interactions, missed doses, changes in health status, or other possible explanations for out of range INRs. |

References: