To Anticoagulate or not to Anticoagulate? A Common Dilemma for the Provider: Physicians’ Opinion Poll Based on a Case Study of an Older Long-term Care Facility Resident With Dementia and Atrial Fibrillation

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Objective: Anticoagulation therapy is an acceptable strategy for the prevention of thromboembolic events in the presence of atrial fibrillation. However, this strategy is controversial in older subjects particularly in the presence of dementia. We conducted an opinion poll regarding the decision to anticoagulate or not among physicians in practice and in various levels of training (residents and fellows) that was based on a specific, yet not unusual, case scenario in the nursing home.

Setting: A university teaching hospital in the Bronx, NY.

Methods: A survey questionnaire was distributed to physicians to solicit opinions on the decision to anticoagulate based on an actual case from a LTCF and the results were analyzed.

Results: One hundred seven completed surveys were returned from 49 residents, 20 fellows, and 38 attending physicians. The majority (85%) felt that long-term anticoagulation therapy was not indicated in the case patient. However, most (88%) felt they would provide an antiplatelet agent, with the choice being 78% aspirin, 20% clopidogrel, and 2% aspirin-dipyridamole. The most cited reasons for not providing anticoagulation were risk of falls (98%), dementia (40%), and short life expectancy (32%). However, 92% of respondents felt that the patient was a candidate for short-term anticoagulation therapy. Interestingly, the choices (yes, no, uncertain) to the questions were similar for all physicians irrespective of their level of training or years in practice (or faculty) after training.

Conclusions: Although long-term anticoagulation for thromboembolic events in atrial fibrillation is considered beneficial, recent reports suggest that warfarin is underused in older adults, especially in the long-term care setting. Our physician poll, based on a specific case scenario, is consistent with this opinion as reflected by both trainees and practicing physicians. While there are absolute and relative contraindications to the use of long-term warfarin, decisions should be individualized and based on risks, benefits, and quality of life of the resident. (J Am Med Dir Assoc 2006; 7: 23–28)

Keywords: Anticoagulation in long-term care; atrial fibrillation; physician opinion poll

Anticoagulation therapy for atrial fibrillation has become an accepted practice in long-term management to prevent thromboembolic events in older adults.1–3 For this purpose, oral warfarin is the traditional drug of choice. However, in view of the risks associated with anticoagulation therapy, many physicians have become cautious in their use of anticoagulants, particularly in older patients. The question to anticoagulate or not is perhaps even more relevant in residents of long-term care facilities (LTCFs). This cautionary approach prompted us to conduct a survey among physicians at various levels of training and experience (residents, fellows, and attending physicians) at an inner city, university medical center. Our survey questionnaire was based on a specific case history of a LTCF resident with dementia and atrial fibrillation (AF) under our care.
METHODS

Survey Case

An 87-year-old white female with known Alzheimer’s disease and AF, plus a past history of surgery for left hip fracture, was admitted to a LTCF following discharge from the hospital. Her echocardiogram revealed normal left ventricle (LV) size and function, with abnormal diastolic filling considered consistent with her age. Before her last hospitalization, she resided in the dementia unit of an assisted living facility. While in that facility, she used to ambulate using a walker with assistance. Because of her cognitive impairment including severe short-term and long-term memory deficits, and impaired judgment, she currently required assistance in most areas of her activities of daily living (ADL). At times, she also exhibited behavioral problems and would become physically abusive and socially inappropriate.

In the LTCF, she initially received nasogastric tube feedings because of poor food intake. Her diet eventually was changed to pureed food plus thickened liquids. During several months of this regimen, her oral intake improved. Despite risperidone treatment, she continued to manifest occasional episodes of abnormal behavior. On admission to the LTCF, she was placed on warfarin therapy for thromboembolic prophylaxis and on donepezil. She was wheelchair bound and required assistance in all areas of ADL. She also failed to cooperate for a mini mental status examination (MMSE).

One night, 6 months after the initiation of warfarin therapy, she was found on the floor in her room by the nursing staff. She had a swelling over her right forehead; her mental status appeared baseline. Her right forehead revealed a 4 x 5 cm soft tissue swelling, with surrounding areas of ecchymosis. Her blood pressure was normal, with no evidence of orthostasis. Heart rate was normal but irregular, consistent with AF. No murmur or bruit was evident and focal neurological deficits were not apparent. Radiological examination was negative for fracture. Her international normalized ratio (INR), obtained the day prior to the incident, was 1.4 (normal, but nevertheless could represent altered prothrombin activity). After the fall, her educated son who also was her surrogate engaged the physician in a long discussion regarding the pros, cons, and potential alternatives to anticoagulant therapy. After a prolonged discussion, warfarin therapy was continued.

Survey Questions

The survey based on the described case was distributed to physicians; the 6 questions and the possible choices for answers follow:

1. Is this patient a candidate for long-term anticoagulation therapy (yes, no, uncertain)?
2. If this patient is a candidate for long-term anticoagulation therapy, would you also consider providing an antiplatelet agent (yes, no, uncertain)?
3. If this patient is not a candidate for long-term anticoagulation therapy, would you nevertheless consider providing an antiplatelet agent (yes, no, uncertain)?
4. If you were to provide an antiplatelet agent, what agent would you choose (aspirin, clopidogrel, aspirin-dipyridamole)?
5. If you would not recommend long-term anticoagulation therapy in this patient, indicate the reason(s) for your choice. You may list as many reasons as you wish. (Examples: Dementia, risk of falls, short life expectancy, drug interactions, need for frequent laboratory testing, risk of legal action, plus any other reasons.)
6. If you feel that this patient is not a candidate for long-term anticoagulation therapy, would you consider short-term anticoagulant therapy (eg, after hip fracture) (yes, no, uncertain)?

Data Analysis

A single individual entered the information from all surveys into a PC-based spreadsheet format. The spreadsheet then was transformed into a statistical dataset and analyzed using PC-based Statistical Analysis Software (STATA 8.0, Stata Corporation, College Station, TX, http://www.stata.com). Statistical analysis provided descriptive summaries that were expressed as actual numbers, percentages, or mean values (± standard deviation). Student t tests were used to detect significant differences between mean values of 2 independent, continuous variables while chi-square analyses or Fisher exact tests (test cell size dependent) were used to compare categorical variables. P values less than .05, in 2-tailed testing, were considered statistically significant.

RESULTS

Participants

One hundred seven surveys were completed and returned. Of these, 49 surveys were from residents in internal medicine, 20 were from fellows in specialties of medicine (including geriatric medicine), and 38 were from attending physicians in internal medicine.

Answers to Question 1

Thirteen percent of the respondents felt that the case study was a candidate for long-term anticoagulation therapy, 85% felt the patient was not a candidate for long-term anticoagulation, and 2% were uncertain. We determined no significant differences in the pattern of response among residents, fellows, and attending physicians (Figure 1, P = .956), or when the responses of trainees (residents and fellows combined) were compared to those of the attending physicians (P = .795).

Answers to Question 2

Of the respondents who elected to provide long-term anticoagulation therapy, 8% stated that they would also provide antiplatelet therapy, 84% stated they would not, and 8% were uncertain. We observed significant differences in the pattern of response among residents, fellows, and attending physicians (P = .025). Residents were uniformly opposed to antiplatelet therapy while fellows and attending physicians were more varied in their responses.
Answers to Question 3

Of the respondents who elected not to provide long-term anticoagulation therapy, 88% stated that they would provide antiplatelet therapy, 9% responded that they would not, and 3% were uncertain. We observed similar patterns of response (≈88% yes, ≈9% no, and ≈3% uncertain) among residents, fellows, and attending physicians (P = .441).

Answers to Question 4

Among all respondents who stated that they would provide an antiplatelet agent, 78% chose aspirin, 20% chose clopidogrel, and 2% chose a combination of aspirin-dipyridamole. We observed no significant differences in the choice of antiplatelet agent among residents, fellows, and attending physicians (P = .514). We also observed no significant difference in the choice of antiplatelet agent whether or not the choice was to provide long-term anticoagulation therapy to the patient (P = .534).

Answers to Question 5

Among the reasons why long-term anticoagulation therapy should not be provided, the risk of falls was cited by 98% of respondents, 40% cited dementia, 32% cited short life expectancy, 21% cited the possibility of drug interaction, 14% cited the need for frequent lab testing, and 4% cited the potential for litigation (Figure 2). We observed similar patterns for the reasons not to provide long-term anticoagulation therapy among residents, fellows, and attending physicians (P = .309).

Answers to Question 6

Ninety-two percent of the respondents believed that the case study was a candidate for short-term anticoagulant therapy while 6% of respondents felt the patient was not a candidate for short-term anticoagulant therapy and 2% were uncertain. We observed no significant differences in the response patterns among residents, fellows, and attending physicians (P = .809).

DISCUSSION

As the woman’s case scenario developed, concerns were raised as to whether or not we should initiate warfarin therapy for long-term thromboembolic prophylaxis for AF. Our discussions with her son (her surrogate) raised several additional concerns. Because of this, we decided to conduct an opinion poll, based on this woman’s specific case history, to determine the general consensus of physicians at our medical center regarding anticoagulation individualized to this resident. One hundred seven physicians, in different stages of training (residents and fellows) and experience (faculty physicians, physicians in medicine and related specialties with practices in long-term care and the community) returned completed surveys.

The results of our poll findings are interesting. By an almost 9 to 1 ratio, physicians elected not to provide long-term anticoagulation therapy for this woman (Figure 1). In addition, the pattern of physicians’ response (yes, no, uncertain) to provide or not to provide long-term anticoagulation therapy was similar irrespective of the level of training or experience (resident vs fellow vs attending physician).

Each physician provided a number of different reasons why they would not provide warfarin therapy (Figure 2). Risk of falls (98% of respondents), dementia (40%), and short life expectancy were the most commonly cited reasons for not providing long-term anticoagulation. Less commonly cited reasons were drug interactions involving warfarin (21%), the need for frequent lab tests (14%), and fear of litigation (4%).

The vast majority of physicians who chose not to provide anticoagulation were willing to provide an antiplatelet agent. Once again, the pattern of choice (yes, no, uncertain) for the use of antiplatelet agent was similar for physicians at all levels of training and experience; approximately 88% would provide, 9% would not, and 3% were uncertain. If an antiplatelet agent was provided, 78% of respondents chose aspirin, 20% clopidogrel, and 2% a combination of aspirin-dipyridamole. Again, the pattern of choice (to provide, not to provide, and uncertain) remained similar regardless of the level of training or experience.

Interestingly, the overwhelming majority of physicians (92%) stated that they would consider short-term anticoagulation therapy in AF.
lation therapy for this woman, if warranted, such as for the prevention of deep vein thrombosis following hip fracture. The fact that the majority of physicians (85%) also believed that long-term anticoagulation therapy was inappropriate in this particular case is consistent with several reports suggesting a tendency to underestimate warfarin. It is also interesting that trainees and practicing physicians chose the same approach of deciding against anticoagulation therapy even though both groups had vastly different levels of training and experience. A likely reason for this may be that, within any given setting, trainees are influenced by exposure to their more senior physicians (mentors).

After a prolonged discussion with the patient's son, warfarin therapy was continued for 2 additional months. During these 2 months, she fell again and warfarin was discontinued. The woman was well for 1 year after discontinuation of warfarin therapy. During this year, additional falls did not occur nor were there any thromboembolic complications. She eventually expired as a result of pneumonia and sepsis.

Prior to initiating anticoagulation, it is prudent to assess the risks and benefits of anticoagulation in the very old. A cost-effective analysis revealed that the gain in quality adjusted life expectancy from anticoagulation for AF declines with advancing age. While a 23% increase in quality adjusted life years occurs in a 65-year-old patient with hypertension, diabetes mellitus, and previous transient ischemic attack (TIA) or stroke, the increase in quality adjusted life years is only 4% for a 100-year-old individual. Baseline quality of life prior to initiating anticoagulation is also relevant and "recommendations that all older persons with AF should be anticoagulated" are premature.

Dementia and its associations are common in the LTC resident and should be a consideration during discussions related to quality-of-life issues. One report, based on the Framingham Heart Study, produced 5-year risk estimates for stroke or death in patients with AF based on a patient's risk factors at baseline. It indicated that risk estimates for stroke or death do not apply for patients on warfarin. However, the data were based on community older adults and not LTC residents, who are often older and present with more comorbidity compared with community patients. Thus, the Framingham risk estimates may not directly apply to our particular case scenario. A second recent report suggests that the perception of underuse of anticoagulants may need revision. In that report, the authors found 117 cases of AF in 934 LTC residents and observed that oral anticoagulation was prescribed 46% of the time, whereas aspirin or clopidogrel were provided 40% of the time. This report provides data that are in contrast to a perceived trend of underusing anticoagulation in AF. Our 87-year-old LTCF resident did not appear to have much to gain in terms of quality of life from long-term anticoagulation.

The physician's opinion regarding anticoagulation may not necessarily reflect the patient's viewpoint. A Canadian study conducted in tertiary and peripheral referral centers revealed that patients at high risk for AF valued prevention of stroke more than avoidance of bleeding, compared with the physicians who treated AF. Hence, patients and/or caregivers should be encouraged to participate in the decision-making process.

Warfarin: Benefits and Risks in Older Adults and Application to Our Specific Case

Warfarin has proven therapeutic benefit as an anticoagulant in humans. Its role in the prevention and treatment of venous thromboembolism, nonvalvular and valvular AF, acute myocardial infarct (MI), valvular heart disease with history of systemic embolism, and prosthetic heart valves are well recognized. It is unfortunate that older adults who may derive maximum benefits from anticoagulant therapy also tend to have many risk factors for complications during warfarin therapy.

The prevalence of nonvalvular AF increases with age. Six percent of men and 5% of women older than 65 years manifested AF whereas 10% of people older than 80 years have AF. The prevalence of AF in LTCF may be as high as 17%. Both reports discuss warfarin underuse in LTCF, even in the absence of contraindications, and suggest the need for better monitoring practices. The authors call for a more organized and systematic approach to the choice of anticoagulation therapy in the presence of AF in the LTCF setting.

The prevalence of stroke varies in patients with AF depending on other risk factors. High risk factors are prior stroke and/or TIA or systemic embolus, history of hypertension, poor LV function, age older than 75, rheumatic mitral valve disease, and prosthetic heart valve. Moderate risk factors are age 65 to 75, diabetes mellitus, and coronary artery disease with preserved LV function. Low risk factors include age younger than 65 with no clinical or echocardiographic evidence of cardiovascular disease.

Another stroke-risk scheme, CHADS2, may be more applicable to the profile of older adults who typically reside in LTCFs. Using this scheme, 1 point is assigned to each of the following: congestive heart failure, hypertension, age older than 75, and diabetes mellitus. Two points are assigned for a history of stroke or TIA and the higher the score the greater the risk. Using this scheme, the stroke rate per 100 patient-years is 18.2 with a score of 6. Based on either risk assessment, our patient did not have a high risk for stroke.

Pooled data from 5 randomized, controlled trials indicate that warfarin therapy significantly reduces the stroke rate (by 68%) in older patients with AF with hardly any increase in bleeding. The effect of aspirin (choice of most physicians in our survey when anticoagulation was not considered) was inconsistent. Following a stroke or TIA, for secondary prevention in AF, warfarin had substantial benefit while aspirin had a lesser effect.

Clinical practice guidelines by the American Geriatrics Society (AGS) recommend a target INR of 2.5 with an acceptable range of 2.0 to 3.0. The efficacy of warfarin significantly declines when the INR is below 2.0, while the risk of complications due to bleeding increases with an INR above 4.0. These recommendations do not differ for the elderly. This report recommends maintaining an INR between 2 and 3 even in elderly patients with AF.

The benefits from aspirin or a combination of aspirin plus fixed dose warfarin are clearly inferior to adjusted dose warfarin. Perhaps the reluctance to use long-term warfarin re-
lates to the fear of bleeding, which is its most significant adverse event. Other known risk factors for bleeding include advanced age (> 75), intensity of anticoagulation (INR > 4), treated hypertension, cerebrovascular disease, serious heart disease, renal insufficiency, and malignancy. Concomitant aspirin use increases this risk of bleeding most in the initial weeks of warfarin-aspirin therapy. Occult pathologic lesions are often a basis for bleeding even with therapeutic INR; hence it is prudent to exclude other causes of bleeding and not ascribe bleeding to anticoagulation alone. Although past gastrointestinal bleeding is described as a risk factor, peptic ulcer disease alone (without past bleeding) is not a risk. Prohibitive risks typically seen in the nursing home setting include serious non-compliance, active bleeding, and recent intracranial hemorrhage, while intermediate risks include age older than 80 years and a history of falls. Thus, the nursing home resident for our survey posed an intermediate risk for bleeding. A recent review of MEDLINE lists bleeding diathesis, thrombocytopenia (below 50,000/L), noncompliance, and uncontrolled hypertension (>160/90 mm Hg) as absolute contraindications (Grade C recommendation), while a predisposition to falls was not considered a contraindication (Grade A recommendation).

Individuals older than 60 years appear more sensitive to the anticoagulant effects of warfarin due to altered pharmacokinetics and pharmacodynamics. Polypharmacy, typical in the long-term care setting, may lead to potentially dangerous drug-drug interactions involving warfarin. Drugs interacting with the cytochrome P450 system in the liver may interfere with warfarin metabolism and alter INR. Many herbal remedies are well recognized to cause drug interactions with warfarin. Many more herbal remedies are suspected to have a drug interaction with warfarin. A listing of the known and suspect herbs is presented in Table 1. Phenytoin, steroids, ranitidine, and propylthiouracil, all used in the elderly, have variable effects. Congestive heart failure (through impaired hepatic synthesis) and hyperthyroidism (due to hypermetabolic state) are associated with low concentration of clotting factors and increased warfarin sensitivity, while hypothyroidism decreases the effects of warfarin.

We recognize that our study has limitations. The survey involved only 100+ physicians, all from one geographic area, and physician responses possibly may have been influenced by similar practice patterns among trainees and mentors. Further, the survey was based on a single, specific case scenario. We should remain cautious in generalizing our findings, as it is possible that another case scenario might elicit a different response from the same physicians. As suggested in the literature, we believe that there is the need to conduct studies on a larger scale and under different settings to identify current physician thinking regarding the issue of long-term anticoagulation in older long-term residents. An approach with precautions for warfarin use in the nursing home is presented in Table 2.

CONCLUSION

The literature suggests that long-term anticoagulation for thromboembolic prophylaxis in AF may be beneficial. However, recent reports suggest that warfarin is underused for this indication particularly in older adults, and even more so in the long-term care setting. Our physician poll, based on a specific case scenario, is consistent with this opinion at both the trainee and practicing physician levels. While absolute and relative contraindications to the use of long-term warfarin exist, each case must be assessed for anticoagulation, based on risks and benefits, as also the consideration of quality of life of the individual.

### Table 1. Known and Suspect Drug/Herb Interactions With Warfarin*

<table>
<thead>
<tr>
<th>Drugs</th>
<th>Herbs</th>
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<tr>
<td><strong>(that potentiate the effects of warfarin)</strong></td>
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<tr>
<td>Acetaminophen</td>
<td>Omeprazole</td>
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<td>Aspirin</td>
<td>Propranolol</td>
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<tr>
<td>Cephalosporins</td>
<td>Quinolones</td>
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<tr>
<td>Cimetidine</td>
<td>Sulfonamides</td>
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<tr>
<td>Doxycycline</td>
<td>Serotonin reuptake inhibitors</td>
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<tr>
<td>Fluconazole</td>
<td>Statins</td>
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<tr>
<td>Influenza vaccine</td>
<td>Tamoxifen</td>
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<tr>
<td>Macrolides</td>
<td>Tramadol</td>
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<tr>
<td>Metronidazole</td>
<td>Valproate</td>
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<tr>
<td>NSAIDs</td>
<td>Vitamin E (large doses)</td>
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- *NSAIDs, non-steroidal anti-inflammatory drugs.
- * Two recent reviews are recommended to the reader.26,27
Table 2. Precautions for Warfarin Use in the Long-term Care Setting*

<table>
<thead>
<tr>
<th>Precautions for Warfarin Use in the Long-term Care Setting*</th>
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<tr>
<td><strong>Initiation of warfarin therapy</strong></td>
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<tr>
<td>• Obtain baseline INR.</td>
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<tr>
<td>• Review all medications, prescribed and over the counter, for possible interactions.</td>
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<td>• Initial starting dose (usually 5 mg or less daily in the elderly).</td>
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<th>Maintenance on warfarin</th>
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<tr>
<td>• Monitor INR until stable at target level.</td>
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<td>• Continue to monitor INR monthly.</td>
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<tr>
<td>• Additional monitoring with changes in medications, diet, or health status.</td>
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<tr>
<td>• Caution regarding use of dietary supplements and herbal preparations.</td>
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<tr>
<td>• Minimize marked variations in diet (especially with foods high in vitamin K).</td>
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<tr>
<td>• Minimize hazardous activities predisposing to falls.</td>
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<th>Management of warfarin therapy prior to surgery.</th>
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<tr>
<td>• Warfarin to be withheld for 4 to 5 days prior to most surgical procedures.</td>
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<tr>
<td>• In high-risk situations (AF with history of stroke, mechanical valves), consider bridging therapy using unfractionated heparin or low molecular weight heparin perioperatively (weigh patient safety, economics, and medico-legal aspects).</td>
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<tr>
<td>• Dental procedures, arthrocentesis, cataract surgery, upper endoscopy, and colonoscopy without biopsy may not require discontinuation of warfarin.</td>
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<tr>
<th>Management of high INR values (with or without bleeding)</th>
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<tr>
<td>• Consider skipping 1 or 2 doses versus lowering the dose of warfarin.</td>
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<tr>
<td>• If risk of bleeding is high (INR over 5), in addition consider use of oral vitamin K.</td>
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<tr>
<td>• If high INR is associated with bleeding, in addition to withholding warfarin, consider use of intravenous vitamin K (10 mg slow IV infusion), fresh frozen plasma, or prothrombin complex concentrate.</td>
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<td>• Contact physician to determine the need for hospitalization.</td>
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AF, atrial fibrillation; INR, international normalized ratio. 
* Refer to references 2, 15, 29, and 30.

REFERENCES


