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Self-management of Warfarin: An Approach to Increase Patient Engagement in Care

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ABSTRACT

This article provides an overview of self-management of warfarin (SMW), an approach that increases patient engagement in anticoagulant management that results in better clinical outcomes. The implementation process for SMW, patient SMW training, and the evaluation of clinical outcomes are described.

Keywords: anticoagulation, self-management, warfarin

Warfarin anticoagulation to reduce thromboembolic events is still necessary for some patient populations. Current practice allows for different levels of patient engagement in warfarin management. Self-management of warfarin (SMW) is the patient use of point-of-care international normalized ratio (INR) measuring devices and patient self-dosing of warfarin. Studies suggest that SMW allows for more frequent testing of warfarin levels, rapid results, and timely dosage change that results in improved outcomes compared with provider management of warfarin.[1-3] The practice of SMW is not mainstream despite evidence-based guidelines that recommend SMW over provider management for patients who are motivated and can demonstrate competency with INR self-testing.[4] Moreover, many appropriate patients refuse to engage in this practice[5] for reasons that are unclear. This article describes the implementation process for SMW, patient SMW training, and the evaluation of clinical outcomes.

SMW IMPLEMENTATION PROCESS AND PATIENT TRAINING

This study was reviewed by the university institutional review board and received approval.

Setting and Patients

Our setting is a large cardiology practice within a large health system in Connecticut where nurse practitioners (NPs) are responsible for managing the care of patients on anticoagulants. Our SMW eligibility guidelines state patients (or their caregiver) must be 18 years of age or older, self-testing INR for at least 3 months, adherent to their testing schedule and reporting INR to provider, and participating in an SMW education session with an NP or group class. Our patients self-test their INR using the Coagucheck (Roche, Indianapolis, IN) or INRatio2 (Roche, Indianapolis, IN) devices.

Ideally, we would like all of our eligible patients to practice SMW; however, the response rate has been low (35%, N = 50). More than half of our patients who are INR self-testing give no reason for declining SMW followed by "no time for training" or "satisfied with current dosing by provider." These results are similar to a pilot program of SMW in which 74% of eligible patients declined to participate and most patients gave no reason.[5] This suggests a need for studies to investigate why there is a lack of patient engagement and interventions to improve participation in self-management.

SMW Group Education

In the recent SMW literature, live educational classes have been reported to last from 15 minutes[6] to 2 hours.[5] For the management of other chronic conditions like diabetes, group self-management education versus individual education has been associated with fewer complications, improved quality of care, and the use of fewer human resources.[7] We

followed the American College of Chest Physicians Clinical Practice Guideline[8] to develop our 1-hour education class with content described in Table 1. To assess SMW knowledge, patients complete a self-assessment quiz with a review of answers in class. Patients also calculate their warfarin dose using a fictitious INR result and the dosing guideline described in Table 2.

The determination that patients are competent to practice SMW is as follows. First, patients must be adherent to self-testing INR for 3 months including timely reporting of the INR to their provider office. Second, patients have to demonstrate an understanding of dose calculation by doing a sample problem correctly in the education class. Lastly, verbal and written instructions stress that SMW is a collaborative practice in which the patient can contact the provider anytime, and if the INR is ≤ 1.8 or ≥ 4 or there is a drop or a rise within the patient-designated range after the third week on SMW, the NP calls to check in and provide guidance.

The dosing guidelines were based on the American College of Chest Physicians clinical practice guidelines.[8] To supplement the live class, we used Office Mix (Microsoft, Redmond, WA) to create short videos on the same content. To allow for patient access to videos, quiz questions and answers, and dosing guidelines, we created a website using free software from Weebly (http://warfarinselfmanagement.weebly.com/).

SMW Processes of Care

Once the patient has participated in an educational class, he or she may begin SMW. The health care provider documents what was discussed during the class in the patient health record, and the patient accepts the responsibility to work collaboratively with the provider. Patients are instructed to continue to report their INR levels to the practice and the support staff forwards the INR to the provider, but the provider will not call the patient unless 1) the INR is ≤ 1.8 or ≥ 4.0 (the provider will call the patient to assist with adjusting his or her warfarin dosing and to update his or her dosing regimen; 2) the patient requests a provider call; 3) the patient will be undergoing a procedure, has been hospitalized, or has had a procedure that may require changes in the warfarin dosing; 4) the patient is starting new medications or stopping medications; 5) the patient reports signs or symptoms of bleeding or an embolic event; or 6) the patient is due for a complete blood count or is late in reporting the INR to the office.

When patients have an office visit, their present dosing regimen is obtained, and they are asked about any bleeding, thromboembolic events, or any upcoming procedures. To maintain safety and quality, patients are informed that they will be removed from SMW if their INR becomes unstable, they are nonadherent with INR testing, or they suffer any adverse events because of an elevated or low INR (eg, serious bleeding requiring emergency department or hospital admission or any embolic event).

SMW Billing, Codes, and Cost

Advanced practices nurses can bill for the group educational class using codes 98961 and 98962. Eligible patients using SMW are not charged for the management of anticoagulation. SMW reduces human resources; on average, we spend 5 minutes per biweekly call to patients for warfarin dosing, resulting in 500 minutes per month savings (N = 50 patients using SMW). We plan to evaluate cost savings when we have more patients using SMW.

EVALUATING SMW EFFECTIVENESS

We track the clinical outcome of the percentage of time INR remained in the therapeutic range (TTR) for patient diagnosis and comorbidities; the mean variance from the patient-prescribed INR range and when INR varies out of range is it lower than the patient range (INR low) or higher than the patient range (INR high), thromboembolic events, major bleeding, and death.

Our current SMW patient characteristics include more men (n = 28, 61%) than women; a mean age of 71.74 years (standard deviation [SD] = 9.37); and prescribed warfarin for atrial fibrillation (n = 20, 44%), Saint Jude valve (Abbott, Saint Paul, MN) (n = 8, 17%), or other (n = 18, 39%). Our SMW patients have good outcomes with a mean TTR of 82.42% (SD = 13.33). When the INR varied outside of patient's designated range it varied into the low