

Complexities of Warfarin Therapy May Lead to Increased Resource Utilization



Managing the Burden of Anticoagulation Therapy

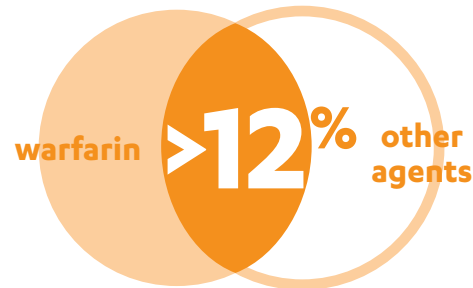
Warfarin has been the oral anticoagulant of choice for nearly 60 years, and its widespread use has been documented and recommended in treatment guidelines.^{1,3} Warfarin has served as the standard of care for many years in:

- *The treatment of deep vein thrombosis (DVT) and pulmonary embolism (PE)*
- *The prophylaxis of thromboembolic complications associated with atrial fibrillation (AF)⁴*

Dose-adjusted warfarin is effective in reducing the risk of stroke and other thromboembolic events. However, it has its own challenges, including narrow therapeutic range, variable patient response, numerous drug and food interactions, and the need for routine coagulation monitoring.³ Precise dosing of warfarin is integral to maintaining protection against thromboembolic events. Management of patients taking warfarin can be challenging, as many factors can affect time in therapeutic range, including drug-drug interactions, drug-food interactions, and nonadherence.^{4,5} A meta-analysis of 8 studies in AF found that patients spend only an average of 55% of time in therapeutic international normalized ratio (INR) range.⁶

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Anticoagulation requires a delicate balance of reducing the risk of thromboembolism, while also minimizing the risk of bleeding. Warfarin use presents challenges, especially in older patients, those with comorbid conditions, and patients taking multiple medications.^{7,8} Many patients on warfarin therapy are simultaneously taking potentially interacting agents. These medications can impact the time spent in therapeutic range, and can ultimately affect patient outcomes.^{7,8}



POTENTIAL INTERACTION

A CONCOMITANT MEDICATION WAS IMPLICATED IN 12.5% OF HOSPITALIZATIONS ATTRIBUTED TO WARFARIN*⁹



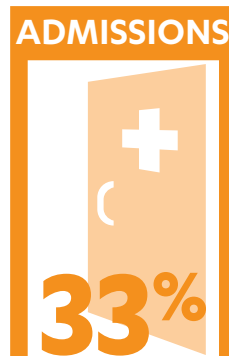
UNSAFE INR LEVELS

~44% OF INR VALUES WERE UNSAFE IN A STUDY WITH ANTICOAGULATION CLINIC PATIENTS (INR <2.0 or >4.0 PRIOR TO STUDY ENROLLMENT)^{†10}

Despite its effectiveness and support from anticoagulation clinics, warfarin presents challenges, including numerous drug and food interactions that may result in INR fluctuations and other complications.^{3,7}



HALF OF ALL PATIENTS DEVIATED FROM THEIR RECOMMENDED WARFARIN REGIMEN¹⁰



WARFARIN WAS INVOLVED IN 33% OF EMERGENCY HOSPITALIZATIONS FOR ADVERSE DRUG EVENTS IN A STUDY OF OLDER US ADULTS FROM 2007-2009^{*9}



TREATMENT COSTS RELATED TO HEMORRHAGIC EVENTS WERE 43% HIGHER FOR PATIENTS WHO USED ANY WARFARIN-POTENTIATING MEDICATION^{#11}

Study Designs

***Budnitz study design:** Adverse-event data from the National Electronic Injury Surveillance System–Cooperative Adverse Drug Event Surveillance project was used to estimate the frequency and rates of hospitalizations after emergency department visits for adverse drug events in patients aged ≥ 65 from January 2007 through December 2009.⁹

†Schillinger study design: Study of long-term warfarin users aged ≥ 18 years ($n=220$) in an anticoagulation clinic setting between March 2002 and June 2003 to determine medication adherence and concordance between patients' and providers' reports of prescribed warfarin regimens.¹⁰

***Suh study design:** A nested-case control study of long-term warfarin-treated AF patients ≥ 18 years old using the Medstat MarketScan database of health insurance claims from January 2004 to September 2009. Patients with a hemorrhagic event were matched to control patients using the incidence density sampling method. Conditional logistic regression was used to calculate the association between use of potentiating drugs and hemorrhagic risk. Treatment costs were calculated during the 3-month timeframe after the occurrence of the hemorrhagic event. Hemorrhage-related costs were costs associated with medical services involved in hemorrhagic treatment and prescription drug costs for hemostatic agents.¹¹

References

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