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Reference: “Management and Outcomes of Bleeding Events In Patients In the Emergency Department Taking Warfarin or a Non-Vitamin K Antagonist Oral Anticoagulant.” Singer, A, et al. *The Journal of Emergency Medicine*. 2017, Jan; 52 (1): 1-7.

Question: Does a difference exist in outcomes between patients on warfarin versus a NOAC who present to the ED with bleeding?

Introduction: Vitamin K antagonists (VKAs) have been successfully used for quite some time in the treatment and preventions of thromboembolic disease. Due to several downsides of this medication (frequent monitoring, multiple interactions, etc) there have been multiple alternative agents developed. (NOACs). These drugs have been shown to be as effective as VKAs; however, little data exists to compare the outcomes of patients on these drugs who present to the ED with unwanted bleeding.

Methods: At a large, suburban, academic medical center, a chart review was conducted of all patients on warfarin or a NOAC who presented with bleeding between January 2012 and March 2015. The agents included were warfarin, dabigatran, rivaroxaban, apixaban or edoxiban. The primary outcome was case fatality rate separated by site of bleeding and agent administered. A total of 437 patients were included, with 432 of those on warfarin and 95 on a NOAC. Patient characteristics and reason for anti-coagulation was similar between groups.

Results: Admission rates and ICU admissions were similar between groups. No statistically significant mortality difference was found between groups (9% vs 6%) and no correlation between INR and mortality was noted. Patients with intracerebral hemorrhage (ICH) versus GI bleeding (GIB) were noted to be more likely to receive platelets but less likely to receive packed RBCs and mortality was higher in the ICH group compared to GIB regardless of what agent the patient was on.

Discussion: Case fatality was similar between groups who presented to the ED on either warfarin or a NOAC. Mortality was higher for ICH compared to GIB regardless of agent the patient was using. This study did not compare the overall risk of bleeding between groups, but rather evaluated mortality once bleeding developed. Despite the lack of direct reversal agent for all NOACs, mortality was low overall and similar between groups. Despite these findings, prior studies have shown differences in bleeding risk between VKAs versus NOACs, and this should play a large role in determining optimal anti-coagulation strategies in those who require anti-coagulation.

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