**Optimizing Venous Thromboembolism Prophylaxis with Rivaroxaban in Medical Inpatients Refusing Multiple Enoxaparin Doses**

**Authors:** Kymberly Buzzeo, PharmD, MBA

**Practice Site:** Novant Health New Hanover Regional Medical Center – Wilmington, NC

**Background:** A recent medication use evaluation that was conducted revealed that 72.3% of medical inpatients who refused at least one dose of enoxaparin 40 mg daily were candidates for rivaroxaban (and none of these patients were switched to rivaroxaban). Patients are considered to be candidates for rivaroxaban if they do not have active cancer, are not receiving dual antiplatelet therapy, have had no bleed episodes or active gastroduodenal ulcers in the past three months, and have no history of bronchiectasis or pulmonary cavitation. As a quality improvement effort, a “Missed/Refused” Heparin column was created in EPIC to identify patients refusing enoxaparin doses and an “Enoxaparin Refusals” iVent and SmartPhrase were created for pharmacist documentation to assess rivaroxaban candidacy. Pharmacists were then educated on how to utilize these tools and when to recommend switches to rivaroxaban.

**Methods:** This was an Institutional Review Board (IRB)-exempt, retrospective chart review and pilot study conducted in a community teaching hospital from December 15, 2021 through March 4, 2022. This study included adult inpatients admitted to an internal medicine floor at the institution’s main campus who refused at least two consecutive doses or two inconsecutive doses (at the pharmacist’s discretion) of enoxaparin 40 mg daily. Exclusion criteria included intensive care unit, emergency department, progressive care unit, cardiac, surgery, or trauma patients, as well as patients with a creatinine clearance less than 30 mL/min, patients receiving rivaroxaban prior to admission, or patients refusing enoxaparin doses other than 40 mg daily. The primary objective of this study was to evaluate the rate of switches to rivaroxaban 10 mg daily in patients refusing multiple enoxaparin 40 mg daily doses. Secondary objectives were to evaluate the appropriateness of switches to rivaroxaban, quantify the frequency of rivaroxaban refusals in patients switched to rivaroxaban, evaluate the rate of pharmacist recommendations for switches to rivaroxaban, quantify the frequency of pharmacist completion of the “Enoxaparin Refusals” iVent, and evaluate the rate of enoxaparin discontinuation in patients with Padua scores less than four. Data pulls of all enoxaparin refusals were performed every three weeks to identify patients refusing multiple enoxaparin 40 mg daily doses. These patients were then screened for pharmacist completion of the “Enoxaparin Refusals” iVent to determine whether pharmacists assessed rivaroxaban candidacy and recommended a switch to rivaroxaban. Descriptive statistics were utilized to analyze data.

**Preliminary Results:** Of the 56 patients included in this study, 11 patients (19.6%) were switched to rivaroxaban and pharmacists recommended switches to rivaroxaban in 17 of these 56 patients (30.4%). Of the 37 patients who were candidates for rivaroxaban, 11 patients (29.7%) were switched to rivaroxaban and pharmacists recommended switches to rivaroxaban in 17 of these 56 patients (45.9%). Of the 25 rivaroxaban candidates who also had Padua scores of at least four, 10 patients (40.0%) were switched to rivaroxaban and pharmacists recommended switches to rivaroxaban in 12 of these 25 patients (48.0%). Of the 12 patients specifically with Padua scores less than four, enoxaparin was discontinued per recommendation of a pharmacist in 5 (41.7%) of these patients. Out of the 11 patients switched to rivaroxaban, all 11 (100%) were rivaroxaban candidates and only one of the 11 patients (9.1%) had refused at least one dose of rivaroxaban. Overall, pharmacists had completed the “Enoxaparin Refusals” iVent for 33 of the 56 patients (58.9%).

**Conclusion:** The “Missed/Refused Heparin” column in EPIC is a useful tool for pharmacists to identify missed doses of enoxaparin (including refusals) and the “Enoxaparin Refusals” iVent is a helpful tool for pharmacists to screen which patients refusing multiple enoxaparin doses qualify for a switch to rivaroxaban. Utilization of these tools has the potential to increase the amount of patients who adequately receive VTE prophylaxis through pharmacist recommendation of rivaroxaban when appropriate.