

2022 Winner

**“Pharmacists decrease time to prothrombin complex concentrate regardless of dosing strategy”**

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Introduction: Rapid administration of four-factor prothrombin complex concentrate (4F-PCC) for the reversal of bleeding in patients on oral anticoagulation presenting to the emergency department (ED) is crucial as it reduces hematoma expansion and decreases length of stay. Emerging data lists reduced administration time while maintaining similar outcomes as major benefits of fixed-dose vs weight-based dosing strategies. The purpose of this study is to determine if pharmacist presence in the ED decreases time to administration of 4F-PCC after implementing a fixed-dose strategy.

Methods: A single-center retrospective chart review was conducted for patients who received 4F-PCC during ED admission from January 1, 2016 to July 31, 2022. Patients were excluded if they were less than 18 years of age. Patient demographics, time to administration, pharmacist presence, and concordance with institutional protocol were collected. The primary outcome was time from 4F-PCC order placement to administration in the pharmacist present fixed-dose regimen cohort. Secondary outcomes included overall time to administration in the weight-based vs fixed-dose cohorts and 4F-PCC concordance with protocol.

Results: Of the 129 patients evaluated, 93 (72.1%) patients received weight-based and 36 (27.9%) patients received fixed-dose 4F-PCC. A pharmacist was present in 48 (51.6%) weight-based cases and 23 (63.9%) fixed-dose cases. Most patients presented with intracranial hemorrhage (73.6%) and on apixaban (40.3%). There was a significant reduction in administration time in the pharmacist present fixed-dose 4F-PCC cohort (21 vs 65 min,  $p < 0.00001$ ). With pharmacist absence, there was a significant reduction in administration time for fixed-dose vs weight-based 4F-PCC (25 vs 46 min,  $p = 0.002$ ). Pharmacist presence did not result in a significant reduction in discordant 4F-PCC use in the overall population ( $p = 0.0783$ ).

Conclusion: Previous studies demonstrated the positive impact of pharmacists on patients regarding reduction of 4F-PCC administration time. This study demonstrated that pharmacists further reduced 4F-PCC administration time by 44 minutes even with a simplified dosing strategy. This study did not demonstrate pharmacist reduction in discordant 4F-PCC use likely due to the highly protocolized nature of this medication.