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77. Direct oral anticoagulant ingestions: a review of the Toxicology Investigators Consortium Registry (ToxIC)

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Background: Direct oral anticoagulants (DOACs) have been pre- sent on the market, starting with dabigatran in 2010, a direct thrombin inhibitor. Newer agents have since been approved, including rivaroxaban, apixaban, and edoxaban, all of which are factor Xa inhibitors. Existing literature indicates ingestions or overdoses of DOACs may be managed conservatively with few cases requiring intervention. We sought to investigate outcomes of DOAC exposures within the Toxicology Investigators Consortium (ToxIC) Registry.

Methods: This is a retrospective review of single-agent exposures to DOACs in the ToxIC registry from 2010 through 2021.

Results: From 2010 through 2021 there were 45 total single-agent exposures to DOAC medications. Thirty-three cases were in adults, and 12 cases were pediatric. Of 33 adult cases, 24 involved exposure to factor Xa inhibitors and 9 involved dabigatran. Regarding adult Xa inhibitor exposures, 12 cases involved apixaban and 12 cases involved rivaroxaban. Six cases were of chronic use, and 18 cases involved acute or acute-on-chronic exposures. Factor replacement with prothrombin complex concentrate was given in two cases, both involving chronic therapeutic use. Unspecified anticoagulant reversal was used in two other cases: a 52-year-old male with acute suicidal ingestion of apixaban with hypotension and a 37-year-old female therapeutic use of rivaroxaban who experienced vaginal bleeding. In total, four cases in the dataset received some sort of pharmacologic reversal, with three out of four cases involving chronic therapeutic use. There were nine cases of dabigatran exposure in adults: three acute exposures and six chronic exposures. In total, three of nine patients required attempted reversal. One case involving therapeutic use in an 81-year-old male required reversal with vitamin K, which was given prior to the FDA approval of idarucizumab. In another dabigatran exposure, a 72-year-old male required the administration of packed red blood cells and fresh frozen plasma due to a gastro- intestinal bleed. Lastly, an acute exposure to dabigatran in a 74-year- old female required idarucizumab reversal. Our data contained 12 pediatric(age </= 18) exposures, all with ingestions of factor Xa inhibitors. Nine cases were acute, and 3 were of unknown chronicity. No pediatric patients in our data set required anticoagulant reversal, decontamination, or enhanced elimination. Twelve suicidal ingestions were documented in the data, all involving factor Xa inhibitors with only one patient, mentioned above, requiring anticoagulant reversal. Of 45 cases, there was 1 death: a 74-year-old male with multisystem organ failure on chronic rivaroxaban unlikely to be related to its use. We analyzed 45 single-agent exposures to DOAC medications. With regard to Xa inhibitors, no pediatric cases required intervention, and only 1 out of 18 acute or acute on chronic cases in adults required pharmacologic intervention or reversal. Dabigatran

cases were uncommon and conclusions about exposures to it are difficult to draw. Our data add to existing literature indicating that the majority of acute DOAC exposures do not require intervention.

Conclusions: The majority of acute exposures to DOAC agents do not require intervention. This study adds to existing data sug- gesting most acute ingestions do well.