**Clotting time recovery and tissue residues following cessation of exposure to the anticoagulant rodenticide diphacinone in Eastern screech-owls**

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Anticoagulant rodenticides are used for the control of vertebrate pests in urban and suburban settings, agriculture and in island restoration projects. New regulatory restrictions have been placed on the use of some second-generation anticoagulant rodenticides (SGARs) in the United States, and in some situations this action may be offset by expanded use of first-generation compounds (FGARs). We have demonstrated that the FGAR diphacinone (DPN) evokes overt signs of intoxication and lethality in raptors at exposure doses that are 20 to 30 times lower than reported for traditionally used wildlife test species (mallard, *Anas platyrhynchos* and Northern bobwhite, *Colinus virginianus*). Sublethal exposure of American kestrels (*Falco sparverius*) and Eastern screech-owls (*Megascops asio*) resulted in prolonged clotting time, reduced hematocrit, and/or gross and histological evidence of hemorrhage at doses as low as 0.16 mg DPN/kg bwt/day. Our most recent study examined clotting time, hematocrit and DPN liver and kidney residues in owls fed a diet of 10 ppm DPN for up to 7 days followed by untreated diet for up to 21 days. By day 3 of DPN exposure, Russell’s viper venom time (RVVT) was prolonged, and by day 7 of DPN exposure, both RVVT and prothrombin time were prolonged and there was evidence of anemia in a few individuals. Upon termination of DPN exposure, coagulopathy and anemia were resolved to baseline values within 1 to 4 days. Surprisingly, DPN residues were consistently greater in kidney than in liver tissue (e.g., DPN on day 7 of exposure was 5.52 μg/g ww kidney versus 0.96 μg/g ww liver). Post-exposure concentrations decreased rapidly within 24 hours; within 1 week liver and kidney values were <0.3 μg/g ww, and within 3 weeks values were <0.1 μg/g ww. The terminal phase half-lives of DPN in liver and kidney were 7.8 days and 4.7 days, respectively. Both FGAR and SGAR exposure monitoring of free-ranging raptors has principally utilized liver tissue, but the present findings suggest that future monitoring efforts should also quantify concentrations in kidney. These data are being used to develop an adverse outcome pathway for anticoagulant rodenticides in avian species. In addition, our findings demonstrate that low level dietary exposure to DPN can evoke toxicity in raptors in a matter of days, but once exposure is terminated, recovery can occur rapidly.