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Brain free hemoglobin increase is different among anticoagulant classes

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Background & Aim: Anticoagulant therapy is broadly used to prevent thromboembolic events. Intracranial hemorrhages are serious complications of anticoagulation, especially with vitamin K inhibitors, including warfarin. Novel direct oral anticoagulants (DOAC) reduce, but not completely eliminate the risk of intracranial hemorrhages. The aim of this study was to investigate the severity of brain hemorrhages as measured by free hemoglobin in the brain parenchyma, among different anticoagulant classes in rats.

Methods: Rats were treated with excessive doses (LD50) of different anticoagulant classes (vitamin K antagonists, including brodifacoum and warfarin, heparin, direct thrombin inhibitor and factor Xa inhibitor). Free hemoglobin concentration was measured in the brain.

Results: Vitamin K antagonists resulted in significant increase in free hemoglobin in the brain. Among DOAC, direct thrombin inhibitor dabigatran also increased free hemoglobin in the brain, whereas treatment with factor Xa inhibitor rivaroxaban did not have effect on free hemoglobin concentration.

Conclusion: Our data indicate that different anticoagulant class result in different accumulation of free hemoglobin in the brain and it is more pronounced with vitamin K inhibitors.

Biography

Sergey V Brodsky is an Associate Professor of Department of Pathology, The Ohio State University Wexner Medical Center (OSUWMC), Columbus, OH. He has published more than 25 papers in reputed journals and has been serving as an Editorial Board Member of *American Journal of Physiology*, *American Journal of Transplantation*, *ISRN Transplantation and Pharmacological Research*.

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