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## WRN- Warfarin related nephropathy in human and experimental animals

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We have recently identified a new clinical syndrome in patients receiving warfarin for anticoagulation therapy. This syndrome has been named warfarin-related nephropathy (WRN), and patients with chronic kidney disease (CKD) appear to be particularly susceptible. WRN is defined as an acute increase in INR to greater than 3.0, followed by evidence of acute kidney injury (AKI) within a week of the INR increase, defined as a sustained increase in serum creatinine (SCr) of greater than or equal to 0.3 mg/dl. The AKI cannot be explained by any other factors, and the kidney biopsy demonstrates extensive glomerular hemorrhage with tubular obstruction by red blood cells. Beyond AKI, WRN is a significant risk factor for mortality within the first two months of diagnosis, and appears to accelerate the progression of CKD. Recent findings suggest that WRN-like syndromes are not confined to anticoagulation with warfarin, but may be seen with the newer anticoagulants coming into clinical use, such as dabigatran.

We had demonstrated that morphologic and laboratory features of WRN can be reproduced in 5/6 nephrectomy model of CKD. Excessive anticoagulation with either warfarin or dabigatran results in serum creatinine elevation, tubular red blood cell casts and acute tubular injury in 5/6 nephrectomy, but not control rats. Possible pathogenesis of WRN may include the PAR-1/thrombomodulin/activated protein C system. Oxidative stress plays a significant role in acute tubular injury, but not glomerular hemorrhage.

We suggest that patients on anticoagulant therapy are at high risk to develop AKI and they should be carefully monitored for changes in kidney function.

### Biography

Sergey V Brodsky has completed his MD and PhD from North Ossetian State Medical Academy (Russia) in 1995 and postdoctoral studies from Technion - Israel Institute of Technology in 1999. He is a renal pathologist at the Ohio State University. He has published more than 84 papers in reputed peer-review journals, 2 book chapters and he is serving as an editorial board member in several journals.

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