Osama Y Alshogran et al., J Gerontol Geriat Res 2016, 5:5(Suppl)
http://dx.doi.org/10.4172/2167-7182.C1.009

A PILOT STUDY OF THE EFFECT OF CHRONIC KIDNEY DISEASE ON STEADY-STATE DISPOSITION OF WARFARIN AND WARFARIN ALCOHOLS

Osama Y Alshogran[a], **Francois A Leblond**[b], **Vincent Pichette**[b] and **Thomas D Nolin**[c]
[a]Jordan University of Science and Technology, Jordan
[b]Hôpital Maisonneuve-Rosemont, Canada
[c]University of Pittsburgh, USA

Warfarin is the most commonly prescribed oral anticoagulant worldwide. Warfarin metabolism is decreased in chronic kidney disease (CKD), suggesting its nonrenal clearance can be altered in CKD patients. However, little is known about warfarin pharmacokinetics in patients with different levels of kidney function. We aimed to explore the impact of impaired kidney function on steady-state pharmacokinetics of warfarin and its alcohol metabolites in elderly patients. Blood samples were collected from patients (total n=25, age: 52-87 years) with varying levels of kidney function (i.e., eGFR ranges from 3-80 mL/min/1.73m2), who were on long-term warfarin therapy. Total and free concentrations of warfarin, warfarin enantiomers, and alcohol metabolites were measured using LC-MS/MS. Warfarin clearance, S/R warfarin ratio, and exposure of warfarin alcohols were compared between groups using ANOVA. Regression analysis was performed to determine the impact of kidney function and other covariates on warfarin clearance and warfarin dosing. Warfarin S/R ratio was 2.5-fold higher in end-stage renal disease (ESRD) patients versus control/mild CKD patients ($P<0.05$). Age was a significant modifier of average weekly warfarin dose and total warfarin clearance. As age increases, a significant decline in warfarin dose and clearance is observed. Collectively, our data provide evidence for increased exposure of the warfarin alcohol 2 metabolite and a possible decrease in CYP2C9-mediated warfarin metabolism in ESRD patients. Decreased warfarin dosing with aging support the known physiological reduction of liver and kidney function in elderly.

Biography

Osama Alshogran has received his Bachelors and Masters degrees from the Faculty of Pharmacy at Jordan University of Science and Technology (JUST) with the specialties including clinical pharmacy and pharmaceutical care. Later on, he has obtained his PhD degree from the School of Pharmacy at the University of Pittsburgh, USA, with special interest in clinical pharmaceutical sciences in the setting of kidney disease. He has continued his research as a post-doctoral fellow at the School of Medicine in Pittsburgh. Presently, he has been working as an Assistant Professor at Faculty of Pharmacy at JUST, Jordan.

oyalshogran@just.edu.jo

Notes: