EFFECT OF DABIGATRAN ON SERUM APOLIPOPROTEIN B AND APOLIPOPROTEIN A1 CONCENTRATIONS

Poster Contributions
Poster Sessions, Expo North
Saturday, March 09, 2013, 3:45 p.m.-4:30 p.m.

Session Title: Arrhythmias: AF/SVT III
Abstract Category: 4. Arrhythmias: AF/SVT
Presentation Number: 1151-44

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Background: Dabigatran is a direct thrombin inhibitor that reduces stroke risk in patients with atrial fibrillation and additional thrombo-embolic risk factors. Carboxylesterases, which convert dabigatran etexilate to its' active form, dabigatran, have also been shown to influence lipid metabolism. We therefore evaluated the impact of dabigatran on serum apolipoprotein markers in the RE-LY study.

Methods: In total, 1041 participants from the RE-LY randomized control trial with baseline and 12-month Apolipoprotein B (ApoB) and Apolipoprotein A1 (ApoA1) results were included. Our primary objective was to compare the effects of dabigatran 110mg twice daily, dabigatran 150mg twice daily, and warfarin on the change in ApoB from baseline to 12 months. The secondary objective was to compare the effects of dabigatran and warfarin on change in ApoA1.

Results: Mean age of participants was 70.9 (standard deviation [SD] = 8.6) years, and 662 (63.6%) were male. Baseline ApoB concentrations were similar in the warfarin (0.84 [SD 0.24] g/L), low dose dabigatran (0.83 [SD 0.24] g/L), and high dose dabigatran (0.86 [SD 0.24] g/L) groups. Compared to warfarin, dabigatran 110 mg twice daily was associated with a 0.06 g/L (p=0.0003) reduction in ApoB, and dabigatran 150 mg twice daily was associated with a 0.08 g/L (p=<0.0001) reduction in ApoB, in multivariable linear regression analyses. Analyses were adjusted for age, sex, ethnicity, cardiovascular risk factors, baseline lipid lowering agent use, addition of a lipid lowering agent during the first year, and prior oral anti-coagulant use. Effects were similar between groups receiving, or not receiving, additional lipid lowering agents at baseline (p-value for interaction=0.43 for low dose dabigatran, and p=0.80 for high dose dabigatran). Dabigatran did not affect ApoA1 levels.

Conclusion: In patients with atrial fibrillation with additional thrombo-embolic risk factors, dabigatran is associated with a significant (approximately 7-9%) reduction in ApoB levels compared to warfarin. This reduction in ApoB could potentially decrease atherosclerotic complications during prolonged therapy, which requires further testing in prospective long-term studies.