**CARDIOVASCULAR SAFETY AND POTENTIAL BENEFIT OF 5-ALPHA REDUCTASE INHIBITOR USE AMONG MALES AND BPH PATIENTS, A KOREAN NATIONAL COHORT**

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**Objective**: Several studies suggest the cardiovascular hazards of 5-alpha reductase inhibitor (5ARI) use. The objective of this paper is to assess the cardiovascular risks of 5ARI use among the general male population and among benign prostatic hyperplasia (BPH) patients.

**Method**: We constructed a cohort of 215,003 males from the National Health Insurance Service-Health Screening Cohort who had no prescriptions of 5ARI during 2002-2003, calculated their 5ARI use during 2004-2007, and observed them for primary outcomes of cardiovascular disease and secondary outcomes of myocardial infarction, total stroke, ischemic stroke, and hemorrhagic stroke during years 2008-2015. We estimated hazard ratios of 5ARI users versus 5ARI non-users using a multivariate Cox proportional hazards analysis, adjusting for health behaviors (smoking, alcohol, exercise, and outpatient visits), demographics (age, sex, and socioeconomic status), comorbidities (body mass index, fasting blood glucose, total cholesterol, Charlson Comorbidity Index, atrial fibrillation, etc.), and confounders. To reduce confounding by indication for 5ARI use, we constructed a subcohort of newly diagnosed BPH patients during years 2004 through 2010, assessed their 5ARI use over four years, and observed primary outcomes of cardiovascular disease until December 31st, 2015. A similar Cox proportional hazards analysis was performed in the BPH patient subcohort.

**Results**: In the general male cohort, the use of any 5ARI did not increase the risk of cardiovascular disease. Furthermore, we found that the highest tertile of 5ARI users among BPH patients experienced a risk reduction of cardiovascular disease in a dose-responsive manner.

**Conclusion**: The use of 5ARI does not increase the risk of cardiovascular disease among males and BPH patients. In BPH patients, the use of 5ARI may reduce the risk of cardiovascular disease.