

## Impact of HMG-CoA Reductase Inhibitor (Statin) Use on Serum PSA and Prostate Volume in BPH Patients

**Introduction and Objective:** The statins, which are cholesterol-lowering drugs, has increased significantly during the last decade. In this study, we investigate the effect of statins on serum prostate-specific antigen (PSA) levels and prostate volume in Korean men diagnosed as BPH.

**Materials and Methods:** We analyzed BPH patients in our institution from January 2010 to June 2010 retrospectively. We excluded 46 men who had abnormal serum PSA level ( $\geq 4\text{ng/ml}$ ), history of prostate surgery or who were taking prostate related medication. A total of 200 patients were enrolled in this study and divided into two groups according to the use of statin. We compared age, serum PSA, prostate volume measured by transrectal ultrasonography of prostate, underlying diseases between two groups. We also analyzed the correlation between statin use and PV, PSA using multivariate regression analysis including confounding factors such as age, hypertension (HTN), diabetes mellitus (DM), cardiovascular disease (CVD), total cholesterol (TC), and aspirin use.

**Results:** The mean age, serum PSA, PV were  $63.80 \pm 6.37$  years,  $2.49 \pm 2.18$  ng/mL,  $34.15 \pm 11.28$  cc, respectively. The mean period of statin use in statin group ( $n=53$ ) was  $10.34 \pm 3.50$  months. The mean serum PSA level showed significant difference between statin group ( $1.60 \pm 1.94$  ng/mL) and non-statin group ( $2.80 \pm 2.58$  ng/mL) ( $p < 0.05$ ). And, PV also significantly lower in statin group ( $29.06 \pm 7.74$  cc) when compared to non-statin group ( $35.98 \pm 14.35$  cc) ( $p < 0.05$ ). In univariate analysis, age, HTN, DM, CVD, TC, aspirin use were correlated with PSA, PV as well as statin use. In multivariate regression analysis, statin use was shown to have a significant association with lower mean PSA. However, statin use was not independent risk factor of PV, and age was the only independent risk factor in multivariate analysis after adjusting significant covariates (Table).

**Conclusions:** Statin use was not correlated with PV but showed significantly lower serum PSA in this study. It may be necessary to determine a different PSA cutoff level for patients taking statin medication.

Table. Independent predictors of serum PSA ( $\geq 3\text{ng/mL}$ ) and prostate volume ( $\geq 30\text{cc}$ ) in multiple logistic regression analysis

	PSA			Prostate volume		
	odds ratio	95% C.I	p-value	odds ratio	95% C.I	p-value
statin use	0.505	0.278-0.919	0.004	2.017	0.848-4.797	0.113
Age ( $\geq 65$ years)	1.441	1.303-1.643	0.035	2.129	1.227-3.694	0.022
Hyperlipidemia	1.003	0.992-1.013	0.631	0.997	0.988-1.007	0.568
HTN	1.410	0.545-3.643	0.479	1.351	0.600-3.043	0.468
DM	0.479	0.157-1.459	0.195	0.866	0.337-2.225	0.765
CVD	0.684	0.139-3.373	0.641	0.892	0.250-3.186	0.860
aspirin use	0.997	0.305-3.258	0.996	0.762	0.285-2.040	0.589

PSA: prostate specific antigen, HTN : hypertension, DM : diabetes mellitus, CVD : cardiovascular disease, C.I : confidence interval.