

## IMPACT OF CONCURRENT STATINS AND 5A-REDUCTASE INHIBITORS USE ON SERUM PSA AND PROSTATE VOLUME IN BPH PATIENTS

### Hypothesis / aims of study

Statins used to improve serum lipid parameters, including reduction in total cholesterol, low-density lipoprotein, and triglycerides. Reduction of serum cholesterol may also be relevant in the treatment of benign prostatic hyperplasia (BPH), since epidemiological data link obesity and dyslipidemia with the rate of benign prostatic growth in humans. These studies supported the rationale for an approach to the treatment of BPH that involves simultaneous management of serum lipid levels. The objective of the current study was to determine whether statins could have the utility in the treatment of BPH through impact on prostate volume (PV).

### Study design, materials and methods

We analyzed BPH patients in our institution from January 2010 to December 2011 retrospectively. A total of 1104 patients were enrolled in this study and divided into four groups according to the use of medications, group A (n=562,  $\alpha$ 1-receptor antagonists only), group B (n=113,  $\alpha$ 1-receptor antagonists and statins), group C (n=219,  $\alpha$ 1-receptor antagonists and 5 $\alpha$ -reductase inhibitors), and Group D (n=210,  $\alpha$ 1-receptor antagonists, statins, and 5 $\alpha$ -reductase inhibitors). We compared age, serum PSA, PV measured by transrectal ultrasonography of prostate, underlying diseases between the four groups. We also analyzed PV changes after 1 year medications between the groups and the correlation between statins use and PV, PSA using multivariate regression analysis including confounding factors.

### Results

There were no significant differences in patient backgrounds, including age, serum PSA, PV, body mass index, between the four groups. The serum PSA decreased in group B (8.5%), C (45%), and D (52%), but not in group A. The PV also decreased in group B, C, and D and statins use was associated with about 2% reduction in PV (Group B), which occurs within 1 year (Table). Statins use was an independent prognostic factor regarding PV reduction in multivariate regression analysis model of group A and B after adjusting significant covariates. However, when compared PV change between group C and D, PV reduction were 24%, 25%, respectively (P>0.05). Statins has no effect on PV reduction when simultaneously taking 5 $\alpha$ -reductase inhibitors.

### Interpretation of results

Statins use was associated with a mild (2%) reduction in PV growth in only not taking 5 $\alpha$ -reductase inhibitors, which occurs within 1-year.

### Concluding message

Statins was not effective over 1 year in the treatment of BPH when taking 5 $\alpha$ -reductase inhibitors. However, the possibility of statins influencing on prostate volume could not be excluded in this study.

Table. Comparison of parameters between the four groups according to use of medications

Parameters	Group A ( $\alpha$ -AB)	Group B ( $\alpha$ -AB + Statin)	Group C ( $\alpha$ -AB + 5 $\alpha$ -RI)	Group D ( $\alpha$ -AB + statin + 5 $\alpha$ -RI)
n	562	113	219	210
Age (years)	63.85±9.97	64.12±9.94	69.86±8.48	67.87±8.09
BMI (kg/m <sup>2</sup> )	24.19±2.99	24.69±2.98	24.50±2.98	24.43±3.25
PSA (ng/mL)	2.37±1.85	2.37±1.76	2.64±2.11	2.56 ±1.59
PSA after 1 year	2.41±1.85	2.18±1.36	1.46±1.36	1.24±1.22
PV (cc)	29.70±10.02	30.84±8.12	44.73±15.66	40.53±14.13
PV after 1 year	30.35±8.81	30.22±8.96*	34.41±11.56	30.46±10.20

Values are presented as Mean±SD.

AB,  $\alpha$ 1-adrenergic receptor antagonists; 5 $\alpha$ -RI, 5 $\alpha$ -reductase inhibitors; BMI, body mass index; PSA, prostate specific antigen; PV, prostate volume.

\* P<0.05 when compared to PV after 1 year in group A.

### Disclosures

**Funding:** None **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Kangbuk Samsung Hospital Institutional Review Board **Helsinki:** Yes **Informed Consent:** Yes