

## IMPACT OF TREATMENT WITH STATIN ON PROSTATE VOLUME AND LOWER URINARY TRACT SYMPTOMS: 3-YEAR FOLLOW-UP

### Hypothesis / aims of study

Statin decreases cholesterol synthesis, which could prevent cardiovascular disease associated with hyperlipidemia. Statins may also affect lower urinary tract function by relaxation of prostatic smooth muscle<sup>1</sup>, increase of blood flow to lower urinary tract<sup>2</sup> and decrease of prostate cell growth and survival<sup>3</sup>. Therefore, we investigated the impact on prostate volume and lower urinary tract symptoms (LUTS) of statin use in patients with benign prostatic enlargement (BPE).

### Study design, materials and methods

We retrospectively reviewed and analyzed the medical records of patients  $\geq 40$  years old who were firstly diagnosed with BPE by health screening program including prostate check-up at the Health Promotion Center and received annual health screening program at least 3 years. We excluded the patients with a history of taking a medication for BPE treatment including  $\alpha$ -blockers, 5- $\alpha$ -reductase inhibitors or anticholinergics, other urological condition (cancer, urologic surgery, neurogenic bladder, urinary tract infection). For prostate check-up in our institute, the patients were assessed by serum PSA, prostate volume measured via transrectal ultrasound and International Prostate Symptom Score (IPSS). We investigated the changes in serum PSA, prostate volume and IPSS according to statin use.

### Results

In this study, we enrolled 119 statin users and 45 non-statin users. Two group demographics were similar at baseline (Table 1). The changes of prostate volume from baseline was  $1.67 \pm 3.76 \text{ cm}^3/\text{year}$  in non-statin user group and  $0.15 \pm 4.56 \text{ cm}^3/\text{year}$  in statin user group, which was statistically significant ( $p = 0.045$ ). There was no statistically significant difference in the prostate transition zone volume ( $1.08 \pm 3.12 \text{ cm}^3/\text{year}$  vs.  $0.19 \pm 2.71 \text{ cm}^3/\text{year}$ ) between two groups. The change of PSA was  $0.18 \pm 1.58 \text{ ng/mL/year}$  in non-statin user group and  $-0.06 \pm 0.45 \text{ ng/mL/year}$  in statin user group, which was no statistically significant. The difference of total IPSS score was  $0.17 \pm 4.02/\text{year}$  in non-statin user group and  $-0.22 \pm 3.6/\text{year}$  in statin user group, however there was no statistically significant. There were no statistically significant differences between two groups in IPSS subscores (voiding score and storage score) and the proportion with increase in total IPSS score  $\geq 4$  during follow-up.

### Interpretation of results

Statin is not effective in the treatment of men with LUTS, although statin tends to reduce prostate volume over 3 years in patients with benign prostatic enlargement.

### Concluding message

Statin is not effective in the treatment of men with LUTS, although statin tends to reduce prostate volume over 3 years in patients with benign prostatic enlargement.

Table 1. Patient demographics and characteristics

Variables	Statin drug use		p-value
	No (n=119)	Yes (n=45)	
Age, years	52.60 $\pm$ 7.44	53.93 $\pm$ 7.62	0.309
BMI, Kg/m <sup>2</sup>	24.83 $\pm$ 2.44	25.13 $\pm$ 1.78	0.456
Waist circumference, cm	88.83 $\pm$ 7.00	89.21 $\pm$ 4.67	0.736
Cholesterol, mg/dL	196.33 $\pm$ 38.24	205.05 $\pm$ 34.25	0.253
Hypertension (%)	24 (20.2)	21 (46.7)	0.001
Diabetes mellitus (%)	11 (9.2)	9 (20)	0.105
PSA, ng/mL	1.28 $\pm$ 0.80	1.47 $\pm$ 2.32	0.444
Total prostate volume, mL	27.29 $\pm$ 7.67	28.59 $\pm$ 7.57	0.332
Prostate transitional volume, mL	11.60 $\pm$ 4.72	12.56 $\pm$ 4.53	0.247
Total IPSS score	9.05 $\pm$ 7.10	8.07 $\pm$ 5.87	0.433
Voiding score	5.48 $\pm$ 3.35	5.05 $\pm$ 5.16	0.064
Storage score	3.16 $\pm$ 2.37	3.35 $\pm$ 2.67	0.561
QoL score	2.04 $\pm$ 1.26	2.31 $\pm$ 1.37	0.750

### References

1. Rees RW et al. J Urol 2003;170:2517-22
2. Sotiriou CG et al. Ann Pharmacother 2000;34:1432-9
3. Padayatty SJ et al. J Clin Endocrinol Metab 1997;82:1434-9

### Disclosures

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