

THE RELATIONSHIP BETWEEN TESTOSTERONE SECRETION AND THE IMPROVEMENT OF BLADDER OUTLET OBSTRUCTION BY ALPHA1-BLOCKER IN MEN WITH BENIGN PROSTATIC HYPERPLASIA

Aims of study

Various symptoms exhibited by elderly men resulting from low testosterone levels are attracting the attention of medical professions as late onset hypogonadism (LOH) syndrome, and are considered to be caused by metabolic syndrome and extreme stress. Epidemiological survey results suggest that lower urinary tract syndrome (LUTS) is related to metabolic syndrome. LUTS is reported to be observed in many patients with LOH syndrome. Therefore, LOH syndrome, metabolic syndrome, and LUTS are considered related and could affect each other. But it is unclear whether the improvement of LUTS and bladder outlet obstruction (BOO) by medical therapy has influence on LOH syndrome and testosterone secretion. We examined the relationships between LUTS and testosterone secretion, bladder outlet obstruction (BOO) and testosterone secretion, and the change in testosterone secretion during treatment for LUTS.

Materials and methods

We examined male patients aged >50 years who presented to our hospital with the chief complaint of dysuria that was considered to be caused by benign prostatic hyperplasia (BPH), a common disease of elderly men, and who did not receive treatment for dysuria. Silodosin, an α 1 blocker, which is not considered to affect testosterone secretion, was administered to the patients. Before and 1 year after administration, the International Prostate Symptom Score (IPSS) and the testosterone level in the blood were measured and a urodynamic study (UDS) was performed to examine the relationships between the changes in subjective symptoms and objective findings and testosterone levels.

Results

The analysis included 67 patients with a mean age of 74.4 (range, 51–84) years, and mean prostate volume 44.8 (range 25 -85) mL. One year after silodosin administration, the mean testosterone level in the blood significantly increased from 5.32 to 5.88 ng/mL ($p=0.003$), the IPSS significantly decreased from 17.3 to 11.2 ($p<0.001$), and the bladder outlet obstruction index (BOOI) obtained in the UDS significantly decreased from 58.8 to 36.5 ($p<0.001$). To elucidate the factors responsible for testosterone secretion, the relationships between the improvements in the IPSS and the BOOI and testosterone secretion were examined. Consequently, it was revealed that although no significant correlation was observed between the improvement in the IPSS and the change in the testosterone level, a significant positive correlation was observed between the improvement in the BOOI and the change in the testosterone level ($r=0.55$, $p<0.001$). (figure)

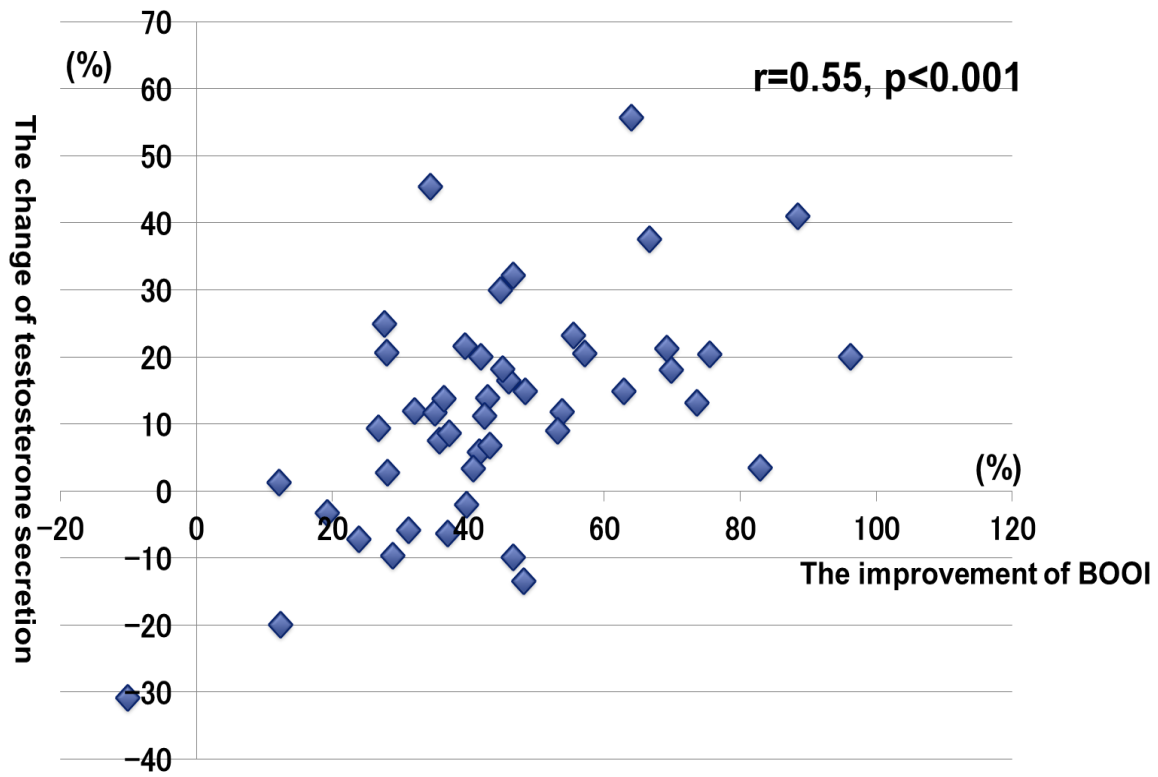
Interpretation of results

Regarding the significant positive correlation between the improvement in the BOOI and testosterone secretion, the improvement in BOO by α 1-blocker lead to sufficient sleep (improvement of nocturia), the increase of bladder blood flow, and the reduction in stress and these were considered to facilitate testosterone secretion. While, the blood antioxidant levels were reported to significantly increase during treatment with α 1 blocker. Therefore, the action of general antioxidants might be responsible for testosterone secretion.

Concluding message

In patients with BPH, treatment using the α 1 blocker silodosin significantly increased testosterone secretion, and the improvement in BOO was found to be correlated with testosterone secretion. Although further examination is required to elucidate the mechanisms underlying these findings, the relief of BOO during treatment for BPH not only improved LUTS but also facilitated testosterone secretion. Therefore, the relief of BOO was suggested to be effective for LOH syndrome.

Figure; The correlation between the improvement in the BOOI and testosterone secretion



Disclosures

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