

RELATIONSHIP BETWEEN SERUM TESTOSTERONE AND NOCTURIA IN MEN WITHOUT BENIGN PROSTATE ENLARGEMENT

Hypothesis / aims of study

To clarify the relationship between serum total testosterone and nocturia in males without an enlarged prostate

Study design, materials and methods

Among the 1029 male patients who visited our clinic for health screening from January 2010 to July 2014, 596 patients without benign prostate enlargement (BPE) were analyzed. To evaluate the effect of serum total testosterone on prevalence of nocturia and number of nocturia episodes, multivariate analyses were performed including the covariates of age, International Prostate Symptom Score (IPSS), International Index of Erectile Function (IIEF) score, body mass index, prostate specific antigen, prostate volume and maximal urinary flow rate.

Results

Mean prostate volume was 21.70±4.34 cm³ and prevalence of nocturia (≥ 2 times/night) was 22.1%. On multivariate linear analysis, serum testosterone level was not significantly associated with severity of nocturia. However, in regard to the relationship between prevalence of nocturia and serum testosterone, prevalence of nocturia was significantly positively associated with age (OR 1.048, P = 0.005), total IPSS (OR 1.217, P <0.001) and testosterone level (OR 1.115, P = 0.041).

Table. Univariate and multivariate logistic regression analysis for the prevalence of nocturia (≥2)

Variables	Univariate analysis			Multivariate analysis†		
	OR	(95% CI)	p	OR	(95% CI)	p
Age	1.060	(1.032-1.089)	<0.001	1.048	(1.014-1.083)	0.005
IPSS-total	1.222	(1.177-1.269)	<0.001	1.217	(1.171-1.265)	<0.001
IIEF-total	0.982	(0.970-0.993)	0.002	1.003	(0.988-1.019)	0.671
Testosterone (ng/mL)	1.159	(1.037-1.296)	0.009	1.150	(1.006-1.315)	0.041
BMI (kg/m ²)	0.956	(0.889-1.028)	0.222			
PSA (ng/mL)	1.023	(0.768-1.361)	0.878			
Prostate volume (cm ³)	0.996	(0.953-1.043)	0.867			
Qmax (mL/s)	0.966	(0.939-0.993)	0.014	1.002	(0.970-1.034)	0.915

†Enter conditional method

Interpretation of results

In this retrospective study representative of middle and older men without BPE, subjects with higher serum testosterone levels were at an increased risk for nocturia. In addition, age and the total IPSS were significantly related to nocturia.

Concluding message

Serum total testosterone level is significantly positively associated with the prevalence of nocturia. Therefore, in men without enlarged prostate, testosterone may have an opposing role in the etiology of nocturia.

Disclosures

Funding: NO Clinical Trial: Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** Institutional Review Board of Gyeongsang National University **Helsinki:** Yes **Informed Consent:** Yes