

THE CORRELATION BETWEEN SERUM PARATHYROID HORMONE, VITAMIN D, AND CALCIUM LEVELS AND PROSTATE SIZE IN PATIENTS WITH BENIGN PROSTATIC HYPERPLASIA

Hypothesis / aims of study

A recent population-based study reported that serum calcium and parathyroid hormone (PTH) stimulate prostate growth. We evaluated whether serum PTH, vitamin D3, and calcium levels correlate with prostate size, PSA levels, and obesity in Korean patients with histologically proven benign prostate hyperplasia (BPH).

Study design, materials and methods

Patients with histopathologically proven BPH who underwent transurethral resection of the prostate (TURP) were enrolled (n=289). Patients with PSA levels of ≥ 3 ng/ml underwent multicore transrectal prostate biopsy before TURP to rule out prostate cancer. Patients with serum creatinine levels >1.4 mg/dl, PSA levels >20 ng/ml, and/or PTH levels <10 pg/ml were excluded. Correlations between serum parameters and clinical data were determined. After adjustment for potential confounders, including age and body mass index (BMI), multiple linear regression served to compute associations.

Results

The mean age, serum PSA level, PTH level, and prostate size were 68.13 ± 7.15 years, 4.10 ± 3.88 ng/ml, 24.33 ± 12.52 pg/ml, and 44.27 ± 24.15 g, respectively. Prostate size correlated positively with age ($r=0.209$, $p<0.001$) and PSA levels ($r=0.481$, $p<0.001$), and PSA levels correlated positively with age ($r=0.226$, $p<0.001$) and prostate size ($r=0.708$, $p<0.001$), but neither variable correlated with PTH, vitamin D, calcium levels, or BMI. Upon multiple adjusted linear regression analysis, prostate size correlated with BMI and serum PSA (both $p<0.001$), and serum PSA levels correlated with BMI and prostate size ($p=0.007$, $p<0.001$, respectively), but neither variable correlated with PTH, vitamin D, or serum calcium levels.

Interpretation of results

In this study, we could not find any evidence supporting the notion that PTH and calcium stimulate prostate growth in patients with pathologically proven BPH.

Concluding message

In patients with histopathologically proven BPH, high PTH, vitamin D and calcium levels do not stimulate prostate growth.

Specify source of funding or grant	None
Is this a clinical trial?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	The Institutional Review Board and the Ethics Committee of Chungbuk National University
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes