Zinc status of patients with benign prostatic hyperplasia and prostate carcinoma

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Go to:
doi: 10.4103/0970-1591.78405
PMCID: PMC3114577

Abstract

Objectives:

The exact cause of benign prostatic hyperplasia (BPH) and prostatic carcinoma is unknown. Changes in the level of the trace element zinc (Zn) are known to be associated with the functioning of different organs (breast, colon, stomach, liver, kidney, prostate, and muscle). This study is aimed at estimating and comparing the zinc levels in the prostate tissue, plasma, and urine obtained from patients diagnosed with BPH or prostatic carcinoma.

Materials and Methods:

The prostate tissue zinc, plasma zinc, and urine zinc/creatinine ratio in BPH, prostate cancer, and normal subjects were measured by atomic absorption spectrophotometry.

Results:

In prostate carcinoma, the mean tissue zinc was decreased by 83% as compared to normal tissue and in BPH, there was a 61% decrease in mean tissue zinc as compared to normal tissues. Both these values were statistically significant. The plasma zinc in prostate cancer patients showed a 27% decrease ($P < 0.01$) as compared to controls and 18% decrease ($P < 0.01$) as compared to BPH. The urine zinc/creatinine (ratio) was significantly increased to 53% in prostate cancer patients, and a 20% significant increase was observed in BPH as compared to normal subjects.
Conclusions:

It is evident from this study that BPH or prostate carcinoma may be associated with a reduction in the levels of tissue zinc, plasma zinc, and an increase in urine zinc/creatinine.