

## The Effects of Changes in Testosterone Level on the Development of Metabolic Syndrome

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**Objectives:** The probability of development of insulin-resistans significantly increases after forty years of age; from this period a decrease of testosterone circulating in the blood is observed in men.

**Methods:** 14 patients with cancer of the prostate of the 3-4 stage were held under examination. The ages of the patients ranged from 60-79.

**Results:** Upon initial tests the average indicators of IL-1 $\beta$ , acid phosphatase, alkaline phosphatase, TNF $\alpha$ , and PSA had increased, while the indicators of testosterone and  $\beta$ TGF had decreased. A month after orchiectomy all patients showed a significant decrease in levels of testosterone ( $p < 0.005$ ), 5 $\alpha$ -dihydrotestosterone, 17 $\beta$ -estradiol ( $p < 0.05$ ) in comparison to initial indicators, while levels of LH and FSH had increased ( $p < 0.001$ ). The reduction of testosterone was accompanied by a statistically meaningful increase of prolactin, STH, and estrone ( $p < 0.05$ ). The reduction of 5 $\alpha$ -dihydrotestosterone determined the reduction of EGF ( $p < 0.05$ ). The decrease in the level of testosterone was accompanied by a statistically significant increase in the levels of insulin, IGF-I ( $p < 0.05$ ), bFGF ( $p < 0.01$ ), 25-OH VitD<sub>3</sub>, and Ca<sup>++</sup> ( $p < 0.05$ ) as well as by a reduction in the levels of  $\beta$ TGF, IL-1 $\beta$ , TNF $\alpha$  ( $p < 0.05$ ), acid phosphatase ( $p < 0.01$ ), alkaline phosphatase ( $p < 0.05$ ) and PSA ( $p < 0.005$ ).

**Conclusions:** The increase in the levels of IGF-1 and insulin in patients after orchiectomy is a compensatory answer to the development of insulin-resistance. Insulin, along with IGF-1, raises the kariokynetic activity of the cells. From these positions it's possible to examine insulin-resistance as an instrument for the increase of the level of insulin, STH, IGF-1 and, accordingly, they're kariokynetic activity.