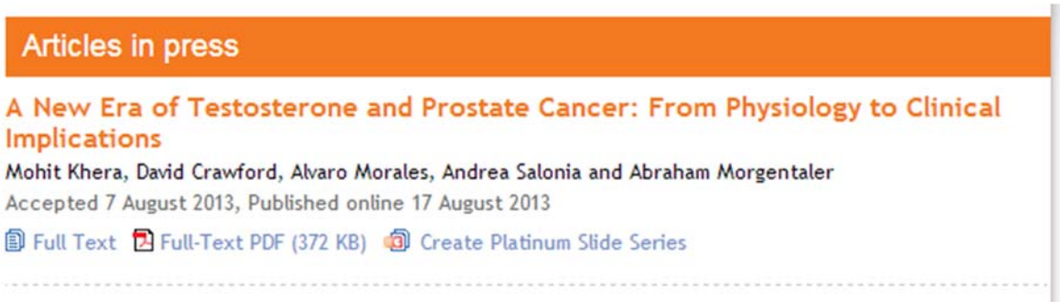

Abstract

Context

Decades-old beliefs regarding androgens and prostate cancer (PCa) have undergone dramatic shifts in light of modern evidence and new theoretical constructs, but considerable confusion remains on this topic, particularly with regard to the use of testosterone therapy in men with any history of PCa.

Objective

To review current literature regarding the relationship of serum testosterone on PCa and in particular the effect of testosterone therapy on PCa progression and recurrence.

Evidence acquisition

A Medline search was conducted to identify all original and review articles assessing the effect of androgens on the prostate and the use of testosterone in men with a history of treated and untreated PCa.

Evidence synthesis

Contrary to traditional teaching, high endogenous serum testosterone does not increase the risk of developing PCa, and low serum testosterone does not protect against PCa. Although limited in size and duration, **current studies similarly fail to indicate any increased risk of PCa in men receiving testosterone therapy**. These results indicate a finite ability of androgens to stimulate PCa growth (the saturation model). **A majority of studies demonstrate an association between low serum testosterone and poor prognostic features of PCa, including high-grade disease, advanced pathologic stage, and increased risk of biochemical recurrence following radical prostatectomy.** The prostate-specific antigen-to-testosterone ratio predicted PCa risk in several biopsy studies. **Multiple reports of testosterone therapy in men after treatment for localized PCa have shown low or absent recurrence rates**. Some men with untreated PCa have received testosterone therapy without evidence for PCa progression.

Conclusions

The long-held belief that PCa risk is related to high serum androgen concentrations can no longer be supported. Current evidence indicates that maximal androgen-stimulated PCa growth is achieved at relatively low serum testosterone concentrations. It may therefore be reasonable to consider testosterone therapy in selected men with PCa and symptomatic hypogonadism.

Take Home Message

Modern evidence has revolutionized concepts regarding androgens and prostate cancer (PCa). The saturation model explains why PCa regresses with androgen deprivation yet seems largely unaffected by raising testosterone. **Testosterone therapy may be reasonable in selected men with prior history of PCa and symptomatic hypogonadism.**