Title: Prostate health: natural ways to prevent cancer

The scope of the prostate problem

The prostate, a major male gland the size of a walnut that envelops the urethra just below the bladder, is a site of a number of serious disorders that affect the health and quality of life of older men. These conditions include inflammation (prostatitis), benign prostatic hyperplasia (BPH) and prostate cancer. The incidence of prostate cancer has increased over the last 25 years since the introduction of both a blood test for serum prostate specific antigen (PSA) and the clinical use of digital examinations which have increased rate of detection. Prostate cancer is most commonly diagnosed in Scandinavian countries and North America, and rarely in East Asia [1, 2]. In 2002, 679,000 new cases of prostate cancer were reported worldwide with 221,000 deaths. Though age, ethnicity, and family history are well-documented risk factors, smoking, lack of exercise, sunlight exposure, environmental contaminants and diet also play an important role. There has been a great deal of research investigating the association between nutrients and the development of prostate cancer. Let's focus on a few.

What is lycopene anyway and how is it related to the prostate?

Lycopene is a carotenoid and phytonutrient found in red fruits and vegetables such as tomatoes, grapefruits, watermelons and papayas. It is considered to be a strong antioxidant that is thought to help prevent degenerative diseases. But when it comes to preventing prostate cancer, the picture is less clear. In a systematic review published in 2012 [3], the authors concluded from eight randomized controlled trials (RCTs) that lycopene supplementation may decrease the incidence of BPH and prostate cancer diagnosis, however the decrease was not statistically significant. Still, lycopene ingestion did decrease PSA levels in men who were diagnosed with prostate cancer: the higher the lycopene levels, the lower the PSA. While the authors concluded that more RCTs are needed before a clear benefit can be determined, other studies looking at the effects of diet (as opposed to supplements) have found more convincing evidence. For instance, the U.S. Health

Professionals Follow-up Study in which a cohort of 50,000 were surveyed by questionnaire found that the greater the intake of lycopene or tomato products, the lower the risk of prostate cancer [4, 5]. Consuming two or more servings of tomato sauce per week led to a greater reduction in prostate cancer risk than lycopene intake from other sources.

Help from a tree?

Pygeum africanum is a plum tree found in tropical Africa. An extract from the bark of this tree has been used in Europe as a prevention and treatment for prostate disorders including benign prostatic hypertrophy (BPH). More recently in the U.S., the phytotherapeutic preparations of Pygeum africanum have been marketed for prostate cancer prevention and treatment. What does the data tell us? Many studies have found Pygeum to help with urinary symptoms associated with BPH, though a comprehensive review of these studies in 2002 suggested that more work needed to be done before reaching any firm conclusions [6]. However, more recent laboratory studies have investigated the anti-cancer effects of Pygeum. In mice, Pygeum has been shown to inhibit growth of cancer cells *in vitro* (in a petri dish) and decrease the incidence of prostate cancer by 35% [7]. Further, the mechanism through which these effects are mediated are beginning to be elucidated [8].

A plant cholesterol that's good for you?

Phytosterols are plant fats that resemble the animal fat cholesterol in structure. Foods rich in phytosterols include unrefined vegetable oils, whole grains, nuts, and legumes. The amount of phytosterol content in your diet has been linked to a decrease in the risk of several cancers, including cancer of the prostate [9]. This information is based largely on epidemiologic studies. For instance, Asians, whose traditional diet is rich in phytosterols and who have a low incidence of prostate cancer, loose this advantage when they move to the West and consume more animal-based diets [10]. In the laboratory, phytosterols have been found to decrease cell proliferation and metastases of prostate cancer cells in male mice, to decrease tumor size by 43% and metastases to the lung, liver and lymph modes by 50% [11].

Take home message

Many studies have supported the important role that diet can play in reducing the risk of developing prostate cancer, as well as improving symptoms associated with benign prostate conditions. Taking a proactive role in making some simple lifestyle changes can lead to enormous benefits in maintaining a healthy gland.

References

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