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FILE: ▪Prostate cancer
▪Complementary therapies
▪PC-SPEC™
▪Selenium
▪Vitamin E

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RE: Prostrate cancer and PC-SPES™, Selenium, and Vitamin E

Kas P, Kaplan I. The role of PC-SPES™, selenium, and vitamin E in prostate cancer. *Oncology*. 2002; 16: 285-300.

A cross-sectional survey of 357 patients at urology clinics and prostate cancer support groups found that 27%-39% of patients with prostate cancer use complementary therapy. Vitamin E was the most popular therapeutic. Another study found similar statistics. There appears to be widespread acceptance of complementary and alternative therapies among prostate cancer patients that is often unrecognized. This article reviews the commonly used herbal and dietary therapies for prevention and treatment of prostate cancer.

PC-SPES™
PC-SPES™ is an herbal extract combination of *Ganoderma lucidum* (Reishi), *Panax pseudoginseng* (Tienchi ginseng), *Rabdosia rubescens* (no common name), *Chrysanthemum morifolium* (Chrysanthemum), *Glycyrrhiza glabra* (Spanish licorice), *Isatis indigotica* (woad), *Scutellaria baicalen*sis (skullcap), and *Serenoa repens* (saw palmetto). PC-SPES™ is a proprietary combination sold by Botanic Lab (Brea, CA). Each capsule contains 320 mg of the herbal combination with an unknown ratio of each extract. The individual extracts may have some antitumor activity and estrogenic effects. There are both hormonally mediated and hormone independent pathways for the activity of PC-SPES™.

PC-SPES™ has been evaluated in several clinical trials; in particular, its affects on prostate specific antigen (PSA) has been evaluated. PSA is a protein made by prostate cells and is normally found in semen. Under certain conditions, such as prostate cancer, PSA can be found in the blood. When male hormones are decreased, there is a decrease in blood PSA levels. This article briefly summarizes the findings of 5 clinical trials. Each trial had 8-70 patients and each took 320 mg PC-SPES™ two to four times a day. The studies found that PC-SPES™ can reduce PSA levels in patients with androgen-dependent or androgen-independent prostate cancer. Each study reported similar adverse side effects, namely, estrogenic effects such as breast tenderness and hot flashes; loss of libido; venous thrombosis; fatigue; leg cramps; nausea; and diarrhea. None of the studies were randomized or placebo-controlled.

Selenium
Selenium is an essential trace element required for the activity of the antioxidant enzyme glutathione peroxidase. It has been shown to have anticancer activity in animals and in vitro. The article briefly describes two clinical trials. One multicenter, double blind, randomized, placebo controlled trial investigated the effects of 200 micrograms of selenium or placebo on patients with a history of basal cell or squamous cell carcinoma of the skin. The study ended early because there was no positive outcome for the skin cancer. However, the researchers noted that the male patients taking the selenium had a lower risk and incidence of prostate cancer. Since prostate cancer incidence was not the primary end point of the study, more research needs to be done.

Another study examined the evidence that dietary selenium intake may alter the risk of advanced prostate cancer. Toenail selenium levels were used as an indicator of long-term dietary selenium intake. Toenail clippings were taken from 33,737 men. Subjects with prostate cancer had significantly lower toenail selenium levels than control subjects (P value not indicated) and higher selenium levels were associated with a lower risk of advanced prostate cancer. It is possible that higher selenium levels decreased the progression and not the incidence of prostate cancer in this population.

There is an ongoing double blind, placebo controlled, randomized study that includes 32,400 men from all over the United States. It is called the SELECT trial (The Selenium and Vitamin E Cancer Prevention Trial). It should answer definitively whether selenium has a role in the prevention of prostate cancer.

Vitamin E
Vitamin E, or alpha-tocopherol, is a fat soluble essential vitamin, which is an antioxidant. Vitamin E may have antitumor activity. A number of clinical studies have found that vitamin E may reduce the risk of prostate cancer in some men. The SELECT trial discussed above will evaluate more definitively whether vitamin E affects the incidence of prostate cancer.

Efficacy data, careful toxicity analyses, dose-response analyses, and pharmacokinetic analyses of these compounds are limited. Nonetheless, patients are using these remedies. Physicians should ask specifically "Are you taking any supplements, vitamin, herbal products, or over-the-counter compounds?" rather than just asking “What medicines are you taking?"

—Heather S. Oliff, Ph.D.

Editor's Note: PC-SPES™ has been taken off the market due to the fact that batches were found containing perscription-only drugs of diethylstilbestrol (DES, a synthetic estrogen), indomethacin (an anti-inflammatory drug), and warfarin (a blood thinner). Further research has shown that PC-SPES™ may have something unique to the herbal compound that works against prostrate cancer. The article, Bonham M, Arnold H, Montgomery B, Nelson PS. Molecular effects of the herbal compound PC-SPES: identification of activity pathways in prostrate carcinoma. *Cancer Research*. 2002 July 15; 62(14):3920-3924, contains recent research fiindings that point to the possibility that PC-SPES™ (batches were screened for DES and other contaminants) may work directly on prostrate cancer cells.

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