Chemoprevention of Prostate Cancer

Department of Urology, First Affiliated Hospital, Zhejiang University School of Medicine, Zhejiang, China

Li-Ping Xie

In the western world, prostate cancer is the most common malignant neoplasia of human males. In recent year, it increased dramatically in China. Chemoprevention, which is a relatively new field in cancer research, refers to a strategy designed to inhibit or reverse the process of carcinogenesis at any of its stages (i.e. initiation, promotion and progression) by the use of naturally occurring and/or synthetic chemical compounds as well as by changes in lifestyle and diet, and the use of various vitamin and micronutrient supplements. Effective chemoprevention requires the use of nontoxic agents that inhibit specific molecular steps in the carcinogenic pathway. Prostate cancer presents a viable candidate for chemoprevention because of its ubiquity, treatment-related morbidity, long latency between premalignant lesions and clinically evident cancer, and defined molecular pathogenesis. Prevention of this disease would have a major impact on disease-associated cost, morbidity, and mortality for a large segment of the population. A major advance in prevention of prostate cancer came in 2003 with the publication of the Prostate Cancer Prevention Trial (PCPT). The PCPT was the first large-scale population based trial to test a chemopreventive strategy in men at risk for prostate cancer. This overview summarizes the results of the PCPT, the design of other large-scale trials, and advances in understanding of the molecular mechanisms underlying the effect of other promising agents, including dutasteride, Selenium, Vitamin E, Vitamin D, COX-2 inhibitors, lycopene, and green tea.