

EFFECTIVENESS AND USEFULNESS OF MASS SCREENING FOR PROSTATE CANCER IN JAPAN: THE EXPERIENCE OF A UNIVERSITY HOSPITAL

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Introduction:

Prostate cancer is the most common form of cancer among men in Western countries, and the mortality rate of prostate cancer was high in the 1990s. However, according to the latest cancer registry in the USA, the mortality rate has decreased since 1992, and in 2004 showed a 34% decrease compared with 1990. Taking into consideration the recent high rate of PSA testing in the USA among men aged 50 years or older, the decrease in cancer mortality may be due to the established PSA-based screening systems and subsequent appropriate treatment for screening-detected prostate cancer.

In Japan, the rate of screening for prostate cancer is still very low compared with Western countries and screening systems have not been established by the national government and depend on each municipal government. We have established a PSA-based screening system for prostate cancer by the municipal government in Kanazawa. To investigate the effectiveness and usefulness of our mass screening program, the present study was performed to analyze the clinical courses of prostate cancer patients aged 55-69 years old in our institution.

Methods:

Since 2000, we have performed PSA-based screening for prostate cancer in men aged 55-69 years old. Between 2000 and 2007, 423 cases of prostate cancer were newly diagnosed in our institution, and 162 of these cases (38.3%) were patients aged 55-69 years old. Of these 162 cases, 100 cases (61.7%) were referred to our institution because of high PSA levels detected on PSA-based screening in the region. Nineteen cases (11.7%) were referred from general practitioners because of high PSA levels without urological symptoms. Thirty-six cases (22.2%) had urological symptoms (including symptoms of benign prostatic hyperplasia), and 7 cases (4.3%) had systemic symptoms at the time of diagnosis. The study population was divided into 119 cases with high PSA without symptoms (PSA testing group), 36 cases with urological symptoms (urological symptom group), and 7 cases with systemic symptoms (systemic symptom group). We have followed-up the patients and analyzed the clinical courses of each group.

Results:

The patients recruited in this study ranged in age from 55 to 69 years, and there were no significant differences in age between the three groups. All of the patients in the systemic symptom group had distant and/or lymph node metastases. The clinical stages of the patients in the urological symptom group and in PSA testing group were T1c and T2 for 24 and 103 patients, T3 for 3 and 6, T4 for 3 and 3, and N1 and/or M1 for 6 and 7, respectively. The rate of localized disease was significantly higher in the PSA testing group than in the other groups. The median Gleason scores of biopsy specimens were as follows: systemic symptom group, 9; urological symptom group, 6.5; and PSA testing group, 6. The Gleason score of biopsy specimens in the PSA testing group was significantly lower than in the other groups. The median serum PSA levels were 1600.0 ng/mL in the systemic symptom group, 13.3 in the urological group, and 7.1 in the PSA testing group. The serum PSA levels at diagnosis in the PSA testing group were significantly lower than those in the other groups.

All of the patients in the systemic symptom group were treated with primary androgen deprivation therapy. In contrast, 24 of 36 patients (66.7%) in the urological symptom group and 93 of 119 (78.2%) in the PSA testing group were treated with surgery and radiation.

Serum PSA levels could be obtained for all patients at a mean post-diagnosis follow-up of 37.1 months. Five patients (3.1%) died of prostate cancer, and clinical and/or biochemical recurrence occurred in 19 patients (11.7%). The probabilities of survival at 5 years were 98.2% and 96.3% for the patients in PSA testing and urological symptom groups, respectively. In contrast, the corresponding percentage for the patients in the systemic symptom group was 40.0%: the difference was statistically significant. The probabilities of non-recurrence at 5 years were 91.6%, 70.8%, and 47.6% in PSA testing, urological symptom, and systemic symptom groups, respectively. The probability of non-recurrence of the patients in the PSA testing group was significantly higher than those in the other groups.

Conclusions:

We showed that the rate of patients with local disease in PSA testing group was higher than those in the symptomatic groups. Moreover, the patients in the PSA testing group have a better prognosis. As mentioned in some recent reports, the mortality rate of prostate cancer may also decrease in the regions of Japan with established mass screening programs.