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Original Article

Outcomes of patients older than 75 years with non-metastatic prostate cancer

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Abstract *Purpose:* Prostate cancer in elderly patients was formerly treated with androgen deprivation therapy. Since the latter of the 1990s new technologies were introduced into treatments, then strategies have varied. We aimed to observe the outcomes of elderly patients treated during transition period and compare each stage with others.
Methods: During 2008 and 2010, 255 patients with prostate cancer older than 75 years were sequentially treated. With exception of patients with bone and/or visceral metastasis, outcomes of 199 patients with localized and locally advanced stages were examined. Complete records were obtained by the end of 2015.
Results: In total, 122 (61%), 28 (14%), 37 (19%) and 12 (6%) of patients were in stages T1c-T2a, T2b-c, T3 and T4, respectively. Patients generally presented with abnormal screening or lower urinary tract symptom. Seventy-one percent of patients received androgen deprivation therapy as monotherapy and 22% of the radiation-treated patients added androgen deprivation therapy. Patients in stage T1c-T2a and T2b-c showed a favorable prognosis. Some cancer death appeared in patients with T3 and T4 during observation periods. Twenty-seven percent of patients died from prostate cancer-independent complications: pneumonia, heart disease, and brain vascular disease. Tendency is similar to that of Japanese elderly male population. No remarkable side effects from androgen deprivation therapy were noticed.

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Conclusion: Elderly patients with localized prostate cancer showed favorable prognosis by androgen deprivation therapy with/without radiation, thus efficacy of androgen deprivation therapy is suitable to elderly patients with applicable stages. Prognosis of patients with locally advanced stage is serious and remains to be improved.

1. Introduction

Recently the incidence of prostate cancer has increased in Japan, with 98,000 cases and 12,200 deaths in 2015 [1]. This increase in patients is attributed to the prolonged life span, widely distributed screening and the routine assay of total prostate-specific antigen (PSA) for patients with lower urinary tract symptom. Approximately half of all prostate cancer deaths occurred in elderly patients over 70 years of age. Consequently, the management of elderly prostate cancer patients is a newly important issue. Prostate cancer in elderly patients exhibits equal or greater malignant properties than in younger patients [2].

Elderly prostate cancer was formerly treated with androgen deprivation therapy (ADT) as a pivotal standard. Since the latter of the 1990s, remarkable progresses in technology, such as laparoscopic surgery, external beam radiation therapy with increased dosage and hypofractionation, and anticancer drugs, were introduced into managements for elderly patients, and use of ADT was changed. Thereafter, there have been many discussions on the treatment of elderly patients [3–7]. Crucial aspects on management include age, life expectancy, comorbidity and predictive effect of treatment. To evaluate various treatment strategies, the present study was aimed to examine the outcomes of elderly patients variously treated between 2008 and 2010 as a transition period from ADT only to introducing new technology. The outcomes of the respective stages were compared with others.

2. Materials and methods

The ethical committee of the Asahi General Hospital approved this research. Between January 2008 and December 2010, 255 cases of prostate cancer who were over 75 years old were sequentially treated at Asahi General Hospital after informed consent was obtained. With the exception of patients with bone and/or visceral metastases, the outcomes of 199 patients with localized and locally advanced stages were followed up. These patients were in good health with a score of 0 or 1 on the Charlson risk index [8] before start of treatment. A complete record of patient outcomes was obtained by the end of 2015. A prostate biopsy was performed with 8–12 cores via the perineal route and histological classification was performed using the Gleason patterns modified in the International Society of Urological Pathology [9]. Staging was classified by National Comprehensive Cancer Network Guidelines 2014 [10]. PSA was assayed with an Architect PSA kit (Abbot, Chiba, Japan). PSA was determined every 3 months, and then every 6 months after treatment. Pretreatment assessment was performed with an echogram and whole body scan, and if necessary, magnetic resonance imaging and computed tomography of pelvic and abdominal areas.

Radical retropubic prostatectomy was performed with a regional lymphadenectomy. External beam radiation therapy was performed with 2 Gy/day to the prostate gland for a total of 66 Gy. Before radiation therapy 3 months of ADT were prescribed, and after radiation therapy ADT was continued for 2–3 years. Brachytherapy with iodine seeds was administered with 145 Gy of a prescription dose as a monotherapy according to the manual.

ADT was performed as a monotherapy with an luteinizing hormone-releasing hormone (LHRH) analog and concomitant use of 80 mg of bicalutamide daily until PSA relapse. In some cases, surgical castration was used instead of LHRH. Relapse was judged by a linear increase of PSA, and when relapse occurred, other hormone therapy and/or chemotherapy were performed.

Statistical analysis was performed with the SPSS statistical software (ver 22, IBM-SPSS Inc, Tokyo, Japan). Follow-up time was measured from the date of treatment initiation. Survival was measured using the Kaplan–Meier method. A p value <0.05 was considered statistically significant.

3. Results

ADT was well tolerated in elderly patients who were accepted during the treatment periods. Hot flashes were controlled temporarily with the prescription of a weak progestational agent. To prevent the loss of bone mineral density, supplementation with calcium and vitamin D was advised. Caution was paid for patients to heart disease, hypertension and diabetes. During ADT treatment, there were no serious adverse effects. The patients were satisfied with the adequate treatment of their prostate cancer.

One hundred and seven patients with T1c-T2a and all the patients with T2b-c received ADT and their outcomes were favorable. Fifteen patients with T1c-T2a were initially treated without ADT: active surveillance, operation and brachytherapy. Some experienced PSA relapse but they received ADT as delayed ADT, and thereafter revealed favorable outcome (Table 1). Their outcomes were included in the respective stage.

Prognosis was calculated on base in the respective stages. The overall survival rates were 77%, 76%, 52% and 35% in stages T1c-T2a, T2b-c, T3 and T4 at 5 years,

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