Radical Prostatectomy Outcome in Men 65 Years Old or Older With Low Risk Prostate Cancer

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Abbreviations and Acronyms

AS = active surveillance

EPE = extraprostatic extension

PCSS = prostate cancer specific survival

PSA = prostate specific antigen

RP = radical prostatectomy

WW = watchful waiting

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Purpose: A recent update of the Scandinavian Prostate Cancer Group Study-4 concluded that men older than 65 years treated with radical prostatectomy had no survival advantage compared to men treated with watchful waiting. We examined the proportion and outcomes of men 65 years old or older with low risk disease who underwent radical prostatectomy at our institution.

Materials and Methods: Our institutional radical prostatectomy database with more than 19,000 patients was queried for men 65 years old or older with low risk prostate cancer. Pathological and survival outcomes were assessed. Subanalysis was done on men 70 years old or older to determine whether outcomes among older men differed by age.

Results: A total of 1,560 men (8.1%) 65 years old or older with low risk prostate cancer underwent radical prostatectomy between 1983 and 2010. After radical prostatectomy 38.3% of the men had evidence of more aggressive cancer, including Gleason score 7 or greater, or extraprostatic extension. After radical prostatectomy actuarial 5, 10 and 15-year biochemical recurrence-free survival was 93.2%, 89.2% and 82.2%, prostate cancer specific survival was 99.7%, 98.4% and 97.2%, and overall survival was 96.1%, 83.5% and 60.2%, respectively.

Conclusions: Fewer than 10% of men treated with radical prostatectomy at our institution were 65 years old or older with low risk prostate cancer. Despite a high prevalence of aggressive disease discovered at surgery these men experienced excellent long-term survival. Treatment recommendations in older men with low risk prostate cancer should be made after careful consideration of life expectancy based on comorbidities and potential adverse outcomes of treatment.

Key Words: prostate, prostatic neoplasms, prostatectomy, outcome assessment (health care), aged

A recent update of the Scandinavian Prostate Cancer Group Study-4 concluded that at 15 years men older than 65 years treated with RP had no survival advantage compared to those treated with WW.[1] Thus, the potential for prostate cancer overtreatment among older men with low risk disease is great. Miller et al concluded that 10% of men with low risk prostate cancer were overtreated with RP.[2] In that study using SEER (Surveillance, Epidemiology and End Results) data they concluded that men older than 70 years bore the greatest burden of this potential overtreatment.[2] Despite evidence that surgery does not improve survival in men 65

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years old or older some of these men with low risk disease undergo RP for various reasons, including the psychological stress associated with cancer diagnosis and the desire to avoid surveillance or another treatment modality.

The oncological outcome in these men after RP is another area of uncertainty. While intermediate pathological and disease-free end points suggest that select older men with low risk prostate cancer might benefit from treatment,[3] longer term cancer specific and metastasis-free survival suggest that overtreatment is common among older men treated for low risk disease.[1,2] Recent concerns of tumor upgrading at RP in the AS population have only added to the controversy.[4–7] Finally, it is unclear whether age related differences in oncological outcomes among older men exist.

To evaluate the pattern of treatment decisions and oncological outcomes among older men with low risk prostate cancer we examined the proportion and outcomes of men 65 years old or older and 70 years old or older with low risk disease treated with RP at our institution in the last 3 decades.

MATERIALS AND METHODS

Study Cohort

The Johns Hopkins institutional review board approved RP database was queried for men with low risk prostate cancer who were 65 years old or older at RP. The 240 patients without complete information on preoperative PSA, clinical stage and biopsy Gleason sum were excluded from analysis. Of these men 124 had only low risk or unknown clinical risk factors. Compared to men included in the study excluded men were more likely to have cT2a disease and lymph node invasion at RP. Low, intermediate and high risk prostate cancer was defined by the D'Amico criteria and low risk prostate cancer was considered clinical stage T1c/T2a, PSA 10 ng/ml or less and biopsy Gleason sum 6 or less.[8]

A total of 19,264 RPs were done at our institution between 1983 and 2010. Of the men 3,322 (17.3%) were older than 65 years and 422 (2.2%) were older than 70 years at RP. Of those 65 years old or older 1,560 (47%), 1,345 (40.5%) and 417 (12.5%) had low, intermediate and high risk prostate cancer, respectively. The final study cohort included the 1,560 men with low risk disease, accounting for 8.1% of all prostatectomies performed at our institution. Men who received neoadjuvant hormonal therapy with antiandrogens or gonadotropin-releasing hormone agonists were included in the final analysis.

Outcomes of Interest

The main outcomes of interest were the proportion of men with low risk disease who underwent RP from 1983 to 2010, pathological features of cancer at surgery and the survival experience of those treated surgically. It was suggested that men older than 65 and men older than 70 years with low risk prostate cancer do not benefit from RP.[1,3] Thus, we assessed clinical, pathological and survival data on men 65 to 69 years old and compared it to those 70 years old or older. Unfavorable pathological features at surgery were defined as Gleason score 7 or greater and/or extraprostatic disease.

Survival

Biochemical recurrence-free survival was evaluated using a single serum PSA measurement of 0.2 ng/ml or greater as the definition of biochemical recurrence. Cause of death was attributed to prostate cancer if prostate cancer was recorded as the underlying cause of death or a patient with hormone refractory metastatic prostate cancer died. Overall mortality was defined as death from all causes. Mortality was attributed to cardiovascular disease if death was due to atherosclerotic disease, including myocardial infarction, cerebrovascular disease or congestive heart failure. Mortality status and cause of death were obtained from patient medical records and confirmed by United States government vital statistics records, including the National Death Index and Social Security Death Index.

Statistical Analysis

Clinical and pathological data were compared with the Student t and chi-square tests, as appropriate. Biochemical recurrence-free, prostate cancer specific, cardiovascular specific and overall survival was estimated via the Kaplan-Meier method. Statistical analysis was done using Stata®, version 11.0.

RESULTS

Median age of the 1,560 men in the study cohort was 67 years (range 65 to 77), including 66 (range 65 to 69) in 1,382 and 71 (range 70 to 77) in 178 ($p < 0.005$). Mean serum PSA at diagnosis was 5.2 ng/ml (range 0.2 to 10), including 5.1 (0.2 to 10) and 5.3 (0.2 to 10) in those 65 to 69 and 70 years old or older, respectively ($p = 0.83$). Clinical stage was T1a/b in 2.1%, T1c in 76.5% and T2a in 21.4% of the patients. Of the men 94.8% had Gleason score 6 prostate cancer on biopsy.

Of the 1,560 men 85% were treated with open radical retropubic prostatectomy, 14.9% were treated with minimally invasive RP and 1 (0.1%) was treated with radical perineal prostatectomy. Except for age there was no difference in the clinical features of men 65 to 69 and 70 years old or older (see table).

Pathological Features

Pathological Gleason sum was 6 or less, 7 and 8 or greater in 69.9%, 27.8% and 1.9% of patients, respectively. Final pathological review revealed organ confined disease in 73.1% of the men, EPE in 26%, seminal vesicle invasion in 2.3% and lymph node involvement in 0.6%. After RP 598 men (38.3%) had unfavorable pathological features. There was no difference in pathological characteristics between men