Age and Baseline Quality of Life at Radical Prostatectomy—Who Has the Most to Lose?

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Purpose: Although younger men have better health related quality of life scores after radical prostatectomy, many have higher baseline function with more to lose than older men. We examined the impact of age on sexual and urinary function and bother during the first 2 years after radical prostatectomy.

Materials and Methods: Participants enrolled in CaPSURE™ reported sexual and urinary scores before and after radical prostatectomy using UCLA-PCI. Repeated measures mixed models were used to compare the change in health related quality of life with time between men who were younger (age 60 years or less) and older (age greater than 60 years). Logistic regression models were used to assess associations between age and clinically meaningful health related quality of life decreases (worsening). Models were adjusted for clinical characteristics.

Results: Of 1,806 patients younger men reported higher sexual and urinary function scores at each time point and higher sexual function decrease rates at 1 year than older men (81% vs 75%, p <0.01). Younger men also had higher sexual bother decrease rates 1 year (74% vs 61%, p <0.01) and 2 years (62% vs 56%, p = 0.02) after radical prostatectomy. On multivariate analysis age was associated with changes in sexual function and bother from baseline through 2 years (each p <0.01). Younger men had higher adjusted odds of sexual function decreases at 1 year (OR 1.15/5 years, 95% CI 1.01−1.30, p = 0.03) but not at 2 years. Younger age was associated with lower odds of worsening sexual bother at 2 years (OR 0.79/5 years, 95% CI 0.67−0.94, p <0.01). Urinary function and bother decrease rates were similar by age. Secondary analyses of the age/health related quality of life interaction showed that men were at greater risk for health related quality of life decreases if baseline scores were above average regardless of age.

Conclusions: Younger men reported higher sexual and urinary function overall, and experienced greater decreases in sexual function immediately after radical prostatectomy than older men. While the 2 groups experienced similar relative sexual function decreases at 2 years, younger men had worse interim decreases at 1 year. Providers should consider these findings when discussing treatment timing, particularly with younger men diagnosed with early stage, low grade disease.

Key Words: prostate, prostatic neoplasms, prostatectomy, quality of life, aging

PROSTATE cancer continues to have a major role in the health of men as the most common cancer in men in North America. It was responsible for 28% of new cancers and 10% of cancer related deaths in 2013.[1] Among management options for localized PCa RP is often the treatment of choice in younger men.[2] Although RP is associated with excellent cancer control,[3,4] it may be followed by decreased HRQOL, primarily in the SF and SB domains.[5,6] This must be considered in the context of patient age since age has a differential effect on HRQOL outcomes postoperatively.

Studies demonstrate that younger patients treated with RP have better sexual HRQOL scores postoperatively than older men.[5–7] However, younger patients are also more likely to have higher baseline SF than older patients. Therefore, although younger patients may have better functional scores after RP, the incurred loss may be the same or even greater compared to that in older men. In addition, similar absolute decreases in SF may affect younger patients differently due to differences in baseline SF and the importance of good SF.

We retrospectively reviewed longitudinal HRQOL data from CaPSURE, a prospectively maintained, nationwide, largely community based prostate cancer registry. We examined the impact of age on changes in SF, UF, SB and UB 1 and 2 years after RP.

METHODS

CaPSURE is a national cancer registry of men with biopsy proven prostate cancer from 36 community based, 3 academic and 3 veteran based urology practices in the United States. Since 1995, 14,300 men have been enrolled consecutively by participating urologists. All patients provide written informed consent under local and central review board approval. Patients are treated according to the usual practice standards of their clinicians and followed until death or withdrawal from study. Participating site physicians provide clinical data while patients report comorbid conditions, symptoms and HRQOL before treatment and at regular intervals after treatment. Men describe treatment related HRQOL using UCLA-PCI, developed by Litwin et al.[8]

Men newly diagnosed with localized prostate cancer after 1995 who underwent RP without adjuvant radiation or hormonal therapy formed the current study cohort. Those who completed a pretreatment (baseline) HRQOL questionnaire and at least 1 posttreatment HRQOL questionnaire were included in the final analysis.

UCLA-PCI is a self-administered questionnaire that measures UF, UB, SF, SB, and bowel function and bother in men with prostate cancer. It is a widely used, well validated, reliable measure of disease specific HRQOL in men undergoing various prostate cancer treatments, including RP.[8–10] SF is assessed using 8 questions on erectile function and various aspects of sexuality. UF is

calculated from 5 continence questions. SB and UB are each based on 1 question asking men to evaluate the bothersome nature of function in the previous 4 weeks. All scores range from 0 to 100 with higher scores indicating better HRQOL. A decrease of $\frac{1}{2}$ SD from baseline was considered a clinically meaningful decrease in HRQOL based on previously validated studies.[11] Post-RP scores were assessed at 1 year to approximate the HRQOL nadir and at 2 years to approximate the level of HRQOL recovery.[12] Questionnaire data were not reported closer to 3 to 6 months after RP, when the actual HRQOL nadir may have been achieved in some men.

Men were grouped by age 60 years or less (younger) and greater than 60 years (older) based on cohort mean age. Localized disease was defined as no clinical T4, N1 or M1. Clinical risk at diagnosis was calculated using the CAPRA score[13] as a continuous measure and as validated risk categories, including low—0 to 2, intermediate—3 to 5 and high—6 to 10. Sociodemographic, clinical and pathological characteristics, and HRQOL scores were compared by age category using the chi-square test for categorical variables and ANOVA for continuous variables.

Associations between age category and change in continuous UCLA-PCI scores during 2 years after RP were assessed with repeated measures mixed models. The odds of clinically meaningful decreases in UCLA-PCI scores 1 and 2 years after RP were evaluated by logistic regression. Age category was used in preliminary logistic models while final models included a more robust continuous age variable. A secondary set of models was used to evaluate the interaction between age and baseline score, classifying men as younger with higher baseline HRQOL (ie above the mean score), younger with lower HRQOL, older with higher HRQOL and older with lower HRQOL. All models were adjusted for diagnostic year, number of comorbidities, CAPRA score, prostate volume, body mass index and nerve sparing (any vs none) surgery. Model covariates were assessed for interitem correlations. Statistical significance was considered at $p < 0.05$. Analysis was done with SAS® 9.2 for Windows®.

RESULTS

Of 10,527 men with localized prostate cancer in the CaPSURE registry since 1995, 4,445 underwent RP monotherapy, including 1,806 who completed pretreatment and posttreatment UCLA-PCI questionnaires and comprised the final analytical cohort (fig. 1). Mean ± SD age was 61.1 ± 6.9 years. Clinical CAPRA risk was low in 74% of patients, intermediate in 23% and high in 3%. Younger men had significantly higher rates of nerve sparing procedures, and more favorable pathological stage, Gleason score and positive surgical margin rates than older men (table 1). Men excluded due to lack of HRQOL data had slightly more intermediate and high risk disease (38% vs 31%) with fewer nerve sparing surgeries (77% vs 83%) and fewer were white (85% vs 93%, each $p < 0.01$).