

Brief Correspondence

Asian-American Race and Urinary Continence After Radical Prostatectomy

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Despite advances in surgical technique, the risk of urinary incontinence remains greater with radical prostatectomy than with other management options for localized prostate cancer [1]. Moreover, the US Preventive Services Task Force reported that 19% of men who choose prostate cancer treatment will experience urinary incontinence [2]. Therefore, beyond mastery of surgical techniques to improve postprostatectomy urinary incontinence [3], a better understanding of factors that contribute to postprostatectomy urinary incontinence is needed to offset the harms of prostate cancer screening and treatment, and to improve health-related quality of life and the quality of medical care.

Studies that measure patient-reported outcomes after prostatectomy largely comprise men of European descent and have demonstrated that patient factors such as older age are associated with worse urinary incontinence [4]. However, little is known about whether race impacts urinary function after surgery. There are well-known racial differences in prostate cancer incidence and mortality; among US men, risks are highest among non-Hispanic Black men and lowest among Asian/Pacific Islanders [5]. Recently, we demonstrated that Prostate Imaging-Reporting and Data System (PI-RADS) performs differently for Asian-American men [6], who are less likely to be diagnosed with clinically significant prostate cancer on magnetic resonance imaging-targeted biopsy. We have observed in our clinical experience that Asian-American men fare worse after prostatectomy in terms of urinary function. Therefore, the aim of our study was to compare the longitudinal recovery of urinary function among Asian-American versus non-Asian-American men.

Data on patient-reported urinary function were collected prospectively before and after surgery among men undergoing radical prostatectomy at Memorial Sloan Kettering Cancer Center (MSK; $n = 3915$) between June 2015 and August 2019 and at Weill Cornell Medicine (WCM; $n = 135$) between June 2015 and August 2019. Urinary continence

was defined as no pads or use of occasional pad/protective material on the Prostate Quality of Life Survey scale at MSK and as no pads on the Expanded Prostate Cancer Index Composite for Clinical Practice at WCM [7].

Owing to the slightly different definitions of continence from the two institutions, we opted for a meta-analytic approach in which differences by race were assessed separately by institution and combined using fixed-effects estimation. For each institution, we constructed a general estimating equation (GEE) logistic regression model using race (Asian vs non-Asian) as the primary predictor of postprostatectomy urinary continence, adjusting for age and time after surgery (3, 6, 9, and 12 mo), and then combining the two estimates for race with weighting by the inverse of the variance. Finally, because there may be cultural differences in pad use by race for similar levels of incontinence, we performed a sensitivity analysis using a GEE logistic regression model with reported pad use as the outcome and race, urinary function score, and age as covariates.

Patient characteristics are reported in Table 1. Asian-American men comprised 23% of the WCM cohort and 2.9% of the MSK cohort. There were no important differences by race other than Asian-Americans comprised a greater proportion of the radical prostatectomy cohort at WCM.

We first assessed whether there was an interaction between race and time since surgery in the GEE model. The interaction was not significant ($p = 0.4$) and we proceeded with a model including race as a main effect only. Asian-American men had significantly worse urinary continence (Fig. 1) within 12 mo after radical prostatectomy compared with non-Asian-American men (odds ratio [OR] 0.76, 95% confidence interval [CI] 0.59–0.98; $p = 0.036$). Among Asian-American men, age-adjusted continence rates at 3, 6, 9, and 12 mo after surgery were 37%, 56%, 68%, and 73%, compared to 40%, 65%, 73%, and 76% among non-Asian men, respectively. Finally, cultural differences did not account



Table 1 – Characteristics of the study sample

Characteristic	Non-Asian	Asian	p value ^a
Patients (n)	3915	135	
Median age, yr (interquartile range)	62 (57–67)	63 (58–68)	0.073
Biopsy Gleason grade, n (%)			0.4
1	756 (19)	19 (14)	
2	1712 (44)	59 (44)	
3	691 (18)	28 (21)	
4–5	726 (19)	29 (21)	
Unknown	30	0	
Institution, n (%)			<0.001
Cornell	68 (1.7)	20 (15)	
Memorial Sloan Kettering Cancer Center	3847 (98)	115 (85)	

^a Statistical tests performed: Wilcoxon rank-sum test; χ^2 test of independence; and Fisher's exact test.

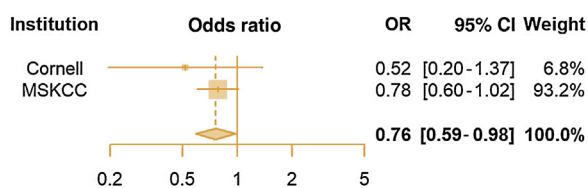


Fig. 1 – General estimating equation logistic regression assessing the effect of Asian race on urinary continence after radical prostatectomy. CI = confidence interval; MSKCC = Memorial Sloan Kettering Cancer Center; OR = odds ratio.

for the variation in continence. Asian-American men had a similar likelihood for pad use at the same urinary function score, adjusted for age (OR 1.01, 95% CI 0.72 to 1.39; $p > 0.9$).

In this study, we found that men of Asian ancestry were more likely to experience significant urinary incontinence after radical prostatectomy. This is a novel finding to the best of our knowledge. The Asian-American population is the fastest growing racial group in the USA and is projected to double from 18.3 to 36.8 million by 2060, at which time Asian-Americans will comprise the largest immigrant group [8]. Prostate cancer incidence is lower among Asian-American compared to non-Hispanic White men, with an incidence rate of 68 versus 123 per 100 000 men [5]. Moreover, we recently demonstrated that Asian-American men are significantly less likely to be diagnosed with clinically significant prostate cancer across the spectrum of PI-RADS classifications [6]. Thus, there is emerging evidence that prostate cancer outcomes differ significantly for the growing demographic of Asian-American men, and this is an increasingly important area of disparities research. Anatomic variations such as racial differences in membranous urethral length may contribute to postprostatectomy incontinence and could be a factor in our findings; however, additional research is needed [9].

To date, disparities in health-related quality-of-life outcomes after radical prostatectomy have largely been limited to comparisons of African-American and White men. DeCastro et al [10] demonstrated in a single-institution study that African-American men were less likely to experience pad-free urinary continence at 12 mo

when compared to non-African-American men (60% vs 76.4%; $p < 0.001$). Similarly, Tyson et al [11] demonstrated that African-American men experience worse postprostatectomy urinary function in a population-based survey of men included in Surveillance Epidemiology and End Results tumor registries. However, the authors noted that they were unable to adjust for surgeon volume or postprostatectomy use of pelvic floor rehabilitation. By contrast, our study is of patients treated by high-volume surgeons at referral centers with equal access to pelvic floor rehabilitation.

Our findings must be interpreted within the context of the study design. First, Asian-Americans are a heterogeneous group comprising different ethnicities and nationalities—Chinese, Japanese, Korean, and Vietnamese, among others—and our broad categorization may not detect differences among Asian-Americans. Second, we were not able to adjust by body mass index (BMI). Although guidelines indicate that BMI does not affect 12-mo urinary continence [4], studies on the impact of BMI on postprostatectomy urinary function outcomes are mixed. Finally, although our study institutions are located in the New York metropolitan area, further research is needed to confirm our findings beyond this geographic region. However, a strength of our study is prospective capture of patient-reported outcomes, which enables a novel comparison of radical prostatectomy differences by race, an area of increasing societal focus given the increasing Asian population in Western countries and racial inequities overall.

In summary, Asian-American men experience 24% lower odds of achieving urinary continence during the first 12 mo following radical prostatectomy. Guidelines cite evidence that recovery of urinary function plateaus at 12 mo [4]. In addition, the same guidelines recommend that providers should counsel patients about factors that impact postprostatectomy recovery of urinary continence. Our findings should be explored in other settings before adoption in shared decision-making.

Author contributions: Jim C. Hu had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: Hu, Vickers, Edhaie.

Acquisition of data: Vickers, Sjoberg.

Analysis and interpretation of data: Hu, Edhaie, Sjoberg, Carlsson, Tzeng, Vickers.

Drafting of the manuscript: Hu, Edhaie, Sjoberg, Carlsson, Tzeng, Vickers.

Critical revision of the manuscript for important intellectual content: Hu, Edhaie, Sjoberg, Carlsson, Tzeng, Vickers.

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