Obesity and prostate cancer recurrence following radical prostatectomy

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Purpose: To examine the association between obesity and risk of prostate cancer recurrence in the CaPSURE™ (Cancer of the Prostate Strategic Urologic Research Endeavor) study.

Methods: We included 3,491 men with prostate cancer from CaPSURE who underwent radical prostatectomy (RP) between 1998-2017 and had body mass index (BMI) available at baseline. BMI was examined continuously and categorically (<25, 25-29.9, 30-34.9, ≥35 kg/m^2). Cancer recurrence was defined as two consecutive prostate-specific antigen (PSA) levels ≥0.2ng/mL after RP or any second treatment. We used Cox proportional hazard models to estimate hazard ratios (HR) and 95% CI for BMI, with adjustment for ethnicity, age, clinical site of recruitment, and diagnostic PSA level, Gleason grade, and T stage.

Results: Patients were followed for a median of 4.7 years [IQR: 2.3, 8.1] after RP. Recurrence occurred in 452 (13%) patients a median of 21 months [IQR: 10.4, 41.4] after RP (66% due to PSA rise). There was a positive association between continuous BMI and risk of recurrence (multivariate HR 1.16, CI: 1.04, 1.29, per 5-unit increase in BMI). Men who were very obese had a higher hazard of recurrence (multivariate HR 1.93, CI: 1.27, 2.92) compared to those with normal BMI. Other BMI categories were associated positively, but not statistically significantly, with recurrence (overweight HR: 1.13, CI: 0.87, 1.46; obese HR: 1.26, CI: 0.92, 1.71).

Conclusions: Extreme obesity was associated with a higher risk of prostate cancer recurrence, after adjustment for baseline demographic and clinical factors. These results are consistent with prior reports on BMI and post-diagnostic clinical outcomes. Our findings support careful follow-up among obese patients following RP. Additional research is needed to determine if this association is independent of lifestyle behaviors (diet, physical activity) or if losing weight after prostate cancer diagnosis is associated with improved outcomes after RP.

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