Diabetes predicts metastasis after radical prostatectomy in obese men: results from the SEARCH database.

Wu C, Aronson WJ, Terris MK, Presti JC Jr, Kane CJ, Amling CL, Freedland SJ.
Duke University School of Medicine; Urology Section, Durham VA Medical Center.

Abstract
WHAT'S KNOWN ON THE SUBJECT? AND WHAT DOES THE STUDY ADD?: Diabetes is known to be associated with a slightly lower risk of prostate cancer. Only a limited number of studies have examined the impact of diabetes on prostate cancer outcomes, with mixed results. This study builds on our prior work showing that on the whole, diabetes is not a risk factor for progression to metastases after surgery. However, intriguingly we found a significant interaction with obesity for modifying the relationship between diabetes and progression. If confirmed in future studies, this suggests the mechanisms by which diabetes alters prostate cancer aggressiveness may differ in obese and non-obese men.

OBJECTIVE: To examine the association between diabetes and metastasis risk after radical prostatectomy (RP) and to determine if race or obesity modifies this relationship.

PATIENTS AND METHODS: Patients comprised 2058 US veterans with prostate cancer (PCa) enrolled in the Shared Equal-Access Regional Cancer Hospital (SEARCH) database and treated with RP between 1988 and 2010. The association of diabetes with metastasis risk or secondary treatment rates was examined using Cox proportional hazards, adjusting for preoperative and, separately, clinical and postoperative findings. The effect modification by race (black vs white) and obesity (body mass index [BMI] ≥30 vs <30 kg/m(2) ) was tested via interaction terms.

RESULTS: Men with diabetes had higher BMIs and were more likely to be non-white (all P ≤ 0.001). On multivariable analysis, diabetes was not associated with metastasis risk (P ≥ 0.45), but, among men with diabetes, longer diabetes duration was associated with higher metastasis risk (P ≤ 0.035). When stratified by obesity, diabetes was linked with higher metastasis risk in obese but not in non-obese men (P-interaction ≤ 0.037), but there was no significant interaction with race (P-interaction ≥ 0.56). Diabetes also predicted more aggressive secondary treatment among obese men but less aggressive treatment among non-obese men (hazard ratio 1.39 vs 0.63, P-interaction = 0.006). Where applicable, results were similar for both pre- and postoperative models.

CONCLUSIONS: Diabetes was not associated with metastasis risk overall. Stratification by obesity yielded significant differences, with diabetes linked to a fourfold higher metastasis risk in obese men, despite predicting more aggressive secondary treatment. Longer diabetes duration was also associated with increased metastasis risk.

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