March 2020

Impact of treatment modality on overall survival in localized ductal prostate adenocarcinoma: A National Cancer Database analysis

Chandler Bronkema
chandler.bronkema2@med.wayne.edu

Sohrab Arora

Nikola Rakic

Akshay Sood

Deepansh Dalela

See next page for additional authors

Impact of treatment modality on overall survival in localized ductal prostate adenocarcinoma: A National Cancer Database analysis

Chandler Bronkema[a,b], Sohrab Arora[b], Nikola Rakic[a,b], Akshay Sood[b], Deepansh Dalela[b], Jacob Keeley[b], Marcus Jamil[b], James O. Peabody[b], Craig G. Rogers[b], Mani Menon[b], Firas Abdollah[b]

[a] Wayne State University School of Medicine, Detroit, MI
[b] Vattikuti Urology Institute, Henry Ford Hospital, Detroit, MI

Key Words: Prostatic neoplasms; survival; National Cancer Database; histology; rare variants

INTRODUCTION AND OBJECTIVE: Ductal adenocarcinoma is considered a rare histological variant of prostate adenocarcinoma (PCa). Given the rarity of this subtype, optimal treatment strategies for men with nonmetastatic ductal PCa is largely unknown. We aimed to describe the impact of surgery, radiotherapy, and systemic therapy on overall survival (OS) in men with nonmetastatic ductal PCa.

METHODS: We retrospectively selected 2209 cases of ductal PCa, diagnosed between 2004 and 2015, within the National Cancer Database (NCDB). Exclusion of metastatic patients yielded a total sample of 1993 individuals. Cox regression analysis tested the impact of treatment (surgery, radiotherapy, systemic therapy and no treatment) on OS. Covariates included age, race, Charlson comorbidity score (CCI), clinical T stage, biopsy Gleason score, serum prostate specific antigen (PSA), and income. Adjusted Kaplan-Meier estimates were used to visualize the impact of treatment modality on OS.

RESULTS: In men with nonmetastatic ductal PCa, median (IQR) age and PSA were 67 (61-74) years and 6.3 (4.3-10.8) ng/mL, respectively. Further, 9.8% (n=195) of patients presented with cT3 disease or higher, 3.4% (n=68) presented a CCI score ≥ 4, and 40.6% (808) presented with a Gleason biopsy score ≥ 4**.** Further, 1212 (60.8%) patients were treated surgically, 406 (20.4%) with radiotherapy, 102 (5.1%) with systemic therapies, and 273 (13.7%) received no treatment. Multivariable analysis showed that in comparison to men treated surgically, OS was significantly lower for patients receiving radiotherapy (HR 2.6; 95% CI 1.7-4.0) and systemic therapies (HR 9.1; 95% CI 5.0-16.5). Adjusted Kaplan-Meier curves are shown in the associated figure.

CONCLUSIONS: Our findings show that in the rare ductal PCa variant, starting treatment with surgery offers more favorable long-term OS outcomes than radiotherapy and systemic therapies. While residual selection bias might persist after adjustment, the rarity of this disease precludes the possibility of a future trial, and the presented data represents the best available level of evidence on this topic.