Research Square

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Association between parental status or spousal sex on prostate cancer treatment selection

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Abstract

Background:

Married men with prostate cancer (PCa) choose active treatment more often than unmarried men. However, the impact of sexual orientation or parental status on PCa treatment selection is unknown and may provide opportunities for improved counseling.

Methods:

We retrospectively studied the Merative™ Marketscan® Commercial Database between 2004–2022 for localized PCa among married men ≤ 65 years. The primary outcome was treatment selection one year after diagnosis. Multivariable regression evaluated associations between parental status or spousal sex and treatment selection.

Results:

Of 71,567 men, 99% had a female spouse and 58% did not have a child. Patients most-often chose prostatectomy (57%), then surveillance (18%) and radiation (15%). Men with children had greater odds of selecting observation/surveillance over prostatectomy (aOR:1.09;95%-CI:1.04–1.14;P < 0.001). Spousal sex did not impact treatment selection.

Conclusions:

Having children was associated with greater odds of choosing AS compared to prostatectomy in a national commercial health insurance claims database, suggesting that parental status may affect treatment selection in localized PCa among men aged ≤ 65.

Background

Married men with localized prostate cancer (PCa) choose curative treatment more often and have improved survival outcomes compared to unmarried men.[1] However, the effect of parental status or spousal sex on treatment selection is unknown. In breast and colorectal cancers, parents are more likely to choose aggressive treatments as opposed to surveillance or observation.[2,3] Treatment selection for PCa among gay and bisexual men may be influenced by sexual behavior and preferences, though this has only been evaluated in institutional cohorts.[4] Understanding the influence of parental status and spousal sex in population-based data may provide opportunities for improved patient counseling.

Methods

We performed a retrospective cohort study in the Merative™ Marketscan® Commercial Database of married men ≤ 65 years with localized PCa diagnosed between 2004 and 2022. This database contains health services records for millions of U.S employees, dependents, and retirees aged ≤ 65 who have insurance through private health plans. Identification of localized PCa followed a validated algorithm.[5] Diagnosis and procedure codes are listed in Supplemental Tables 1 and 2. This study was deemed exempt by our institution's Internal Review Board.

We identified patient characteristics at diagnosis; Marital status, parental status, and spousal sex were defined using an identifier linking individuals on the same policy. Parental status was determined by whether children were on the policy. The primary outcome was treatment selection within one year of diagnosis. We performed multivariable multinomial regression to analyze the association between parental status or spousal sex and treatment selection, controlling for year of diagnosis and baseline characteristics in Table 1 (e.g., age at diagnosis, geography, insurance status, comorbidities, etc).

Results

We identified 71,567 married men with an average age at diagnosis 57.4 years (SD 4.6). Most had a female spouse (99.5%) and did not have children on their policy (57.7%). Men were healthy with low National Cancer Institute[6] comorbidity scores (mean 0.1, SD 0.2), obesity (4.6%), smoking (1.7%), and erectile dysfunction rates (3.6%) (Table 1).

Patients most-often chose prostatectomy (57.4%), followed by active surveillance or observation (AS) (18.1%), radiation (15.3%), brachytherapy (6.1%), radiation + brachytherapy (2.5%), and cryotherapy (0.7%). In 2022, patients most-often chose prostatectomy (46.0%), then AS (31.5%). Multivariable regression (Table 2) found that having children was associated with greater odds of selecting AS (aOR:1.09;95%-CI:1.04–1.14;P < 0.001) over prostatectomy, but lower odds of selecting radiation (aOR:0.93;95%-CI:0.89–0.98;P = 0.006), radiation + brachytherapy (aOR: 0.83; 95%-CI: 0.75–0.94; P = 0.003), or cryotherapy (aOR: 0.74; 95%-CI: 0.59–0.93; P = 0.010). The association between having children and selecting AS over prostatectomy persisted when parental status was defined granularly (1 vs 0 children [aOR: 1.09; 95%-CI: 1.03–1.15; P = 0.002]; 2 vs 0 [aOR: 1.09; 95%-CI: 1.02–1.15; P = 0.009], and 3 + vs 0 [aOR: 1.15: 95%-CI: 1.05–1.25; P = 0.002]). Male spousal sex was not associated with treatment selection of AS (aOR: 1.20; 95%-CI: 0.92–1.56; P = 0.19), radiation (aOR: 1.02; 95%-CI: 0.75–1.40; P = 0.89), brachytherapy (aOR: 0.89; 95%-CI: 0.49–1.64; P = 0.72), radiation + brachytherapy (aOR: 1.08; 95%-CI: 0.52–2.24; P = 0.83), or cryotherapy (aOR: 1.29; 95%-CI: 0.32–5.27; P = 0.72) over prostatectomy, though confidence intervals were wide.

Discussion

Having children was associated with greater odds of men with localized prostate cancer choosing AS compared to prostatectomy in a national commercial health insurance claims database, suggesting that parental status may affect treatment selection in PCa. This finding is in contrast to other malignancies,

where having children is associated with more aggressive treatment.[2,3] Concerns regarding functional outcomes after prostatectomy may explain this finding in this cohort of young men, though other sociodemographic or clinical factors may also be present.[3,7]

There were few patients with a male spouse in this cohort (0.5%), making it difficult to draw conclusions about associations between spousal sex and treatment selection. Prior work suggests gay and bisexual men may select radiation if they prefer insertive anal intercourse due to better post-treatment erectile function compared to prostatectomy, or select prostatectomy if they prefer receptive intercourse due to anodyspareunia after radiation.[4] As the sexual practices of patients in this cohort were not able to be evaluated, we were unable to assess these effects on treatment selection. The lack of data on sexual orientation and cancer treatment in claims data suggests that institutional data may be best-suited to study the association between sexual orientation or sexual behavior preferences and treatment selection.[4,8]

This study should be interpreted considering its limitations. Parental status may be incompletely defined as children may not be on a parent's policy. However, this is the first study to identify parental status as a factor in treatment selection for localized PCa. PCa stage and grade data were not available, however guidelines recommending AS as the preferred management strategy for low-risk patients were established during this time. Therefore, patients who chose surveillance are likely to have low- or intermediate-risk disease. Finally, we were unable to differentiate between active surveillance and observation, though it is unlikely this group of young healthy patients would have the limited life expectancy for watchful waiting/observation. Notwithstanding these limitations, our study identifies parental status as a potentially important characteristic influencing treatment selection in young, married patients with localized PCa. Future studies on treatment selection should prioritize data sources or collection methods including broad familial information and sexual orientation to determine whether these characteristics warrant greater consideration during patient counseling.

Conclusions

Having children was associated with greater odds of choosing AS compared to prostatectomy in a national commercial health insurance claims database of men aged ≤ 65, suggesting that parental status may affect treatment selection in localized PCa among younger men.

Declarations

Ethics approval and consent to participate:

This study was deemed to be exempt for ethics approval and any requirements of patient consent to participate by the University of Chicago Internal Review Board.

Consent for publication:

Not Applicable

Availability of data and materials:

Data in this study is supplied by Merative as part of one or more MarketScan Research Databases. De-identified analytic outputs and code can be made available from the corresponding author upon reasonable request.

Competing interests:

The authors disclose no conflicts of interests.

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Author Contributions:

JBM:Writing - Original draft, Data Interpretation, Writing - Review/Editing, Project Administration, Conceptualization

MH: Formal Analysis, Methodology, Writing - Review/Editing, Funding

JC: Writing - Review/Editing,

TAS:Writing - Review/Editing, Supervision, Conceptualization

PKM: Data Interpretation, Writing - Review/Editing, Supervision, Conceptualization

Availability of data:

Data in this study is supplied by Merative as part of one or more MarketScan Research Databases. De-identified analytic outputs and code can be made available from the corresponding author upon reasonable request. Any analysis, interpretation, or conclusion based on these data is solely that of the authors and not Merative. No artificial intelligence was used in the creation of this manuscript. De-identified analytic outputs and code can be made available from the corresponding author upon reasonable request.

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Tables

Tables are available in the Supplementary Files section.

Supplementary Files

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- SupplementalMaterials.docx
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