Erectile Dysfunction and Sexual Problems Two to Three Years After Prostatectomy Among American, Norwegian, and Spanish Patients

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Abstract

Erectile dysfunction (ED) and sexual problems are important adverse effects after prostatectomy. We found a discrepancy in the reported fraction of patients from the United States (n = 494), Norway (n = 472), and Spain (n = 111) who reported ED 2 to 3 years after prostatectomy. However, after adjusting for pretreatment variables, we did not find any statistical significant differences in the association between the countries of treatment and the proportion of men with postprostatectomy ED or sexual problems.

Background: The incidence of erectile dysfunction (ED) and sexual problems after radical prostatectomy has differed greatly in reports from different centers and countries; however, few studies have taken baseline factors into account. We compared the incidence of ED and sexual problems 2 to 3 years after radical prostatectomy in American, Norwegian, and Spanish men for whom selected clinically relevant demographic and medical pretreatment variables were available. **Patients and Methods:** From 2003 to 2009, 1077 men (United States, n = 494; Norway, n = 472; and Spain, n = 111) scheduled for prostatectomy responded to an Expanded Prostate Cancer Index Composite questionnaire before treatment and 2 to 3 years after prostatectomy. On multivariate analysis, the odds ratios for ED and sexual problems were calculated, adjusted for the pretreatment variables found significant ($P < .01$) on univariate analysis. **Results:** For all patients and for those without ED preoperatively, no statistically significant association was detected between the country of prostatectomy and the likelihood of reporting post-prostatectomy ED or sexual problems despite the significant differences among the 3 countries in the unadjusted analyses. **Conclusion:** Adjusting for important pretreatment variables, no intercountry differences were detected. Thus, a thorough knowledge about the pretreatment medical and demographic factors is essential for valid comparisons of the incidence of post-prostatectomy ED and sexual problems among different studies.

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Introduction

Impaired sexual function is one of the most common adverse effects of prostatectomy. With a 15-year overall survival rate of 62%, most patients will have to live with potentially adverse post-operative effects for many years.[1] Furthermore, after prostatectomy, the preservation of the patient's sexual life is often used as a criterion of success. Patients, physicians, and health administrators are eager to compare the prevalence of impaired sexual function documented at their hospital or in their country with the results from other institutions or countries. However, published reports have revealed a wide range in the prevalence of postprostatectomy erectile dysfunction (ED).[2,3]

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Sexual function and sexual problems are important features of sexual life as perceived by patients. However, no international consensus has been reached regarding the definition of ED and sexual problems. In patient-completed questionnaires, ED could thus be assessed differently by the affected patients.[4] Furthermore, not all patients experience ED as a problem.[5,6]

Several factors have been shown to affect postprostatectomy sexual life outcomes, such as patient age, comorbidity, pretreatment erectile function, and operative technique, such as nerve-sparing procedures.[2,7] However, few reports have adjusted for these factors when comparing interinstitutional rates of postprostatectomy ED or sexual problems.

To gain more insight into postprostatectomy adverse effects, we initiated a collaboration among research groups from the United States (Prostate Cancer Outcomes and Satisfaction Treatment Quality Assessment), Norway (Norwegian Urological Cancer Group), and Spain (Spanish Group of Localized Prostate Cancer, Barcelona). We had previously documented significant differences between erectile function and sexual problem reported by patients scheduled for curative treatment of prostate cancer (PCa) from Norway, the United States, and Spain.[5] In the present study, we compared patient-reported erectile function and their experience of sexual problems after surgery in the same cohort. We anticipated finding significant intergroup differences 2 to 3 years after prostatectomy in the incidence of no erectile dysfunction (NoED) and sexual problems but that these differences would disappear after adjusting for important pretreatment variables. A secondary aim was to assess the relationship between postprostatectomy erectile function and sexual problems, separately, for each of the 3 countries.

Patients and Methods

Study Design and Patients

The local ethical committees approved the creation of a combined de-identified electronic data file of the American, Norwegian, and Spanish patients. The eligibility criteria were histologically confirmed PCa; clinical stage T1 or T2 tumor; known level of pretreatment prostate-specific antigen (PSA) and Gleason score; retropubic, laparoscopic, or robot-assisted prostatectomy with or without nerve-sparing surgery; no neoadjuvant androgen deprivation therapy; and valid responses to the questions on quality of erection and overall sexual problems before and 2 to 3 years after prostatectomy using the Expanded Prostate Cancer Index Composite (EPIC)-26/EPIC-50 questionnaire.[8,9] In the present study, the term "valid" implied that substitutions for missing responses were not required.

For each patient, the file also contained their medical and sociodemographic data (comorbidity, PCa risk group,[10] age, education, and paired relationship) and surgical technique.

Clinical Variables

Risk Groups. The risk groups were defined according to the European Guidelines on Prostate Cancer Treatment from 2012.[10] Low-risk PCa was defined as stage cT1-T2a, Gleason score 2 to 6, and PSA level < 10 ng/mL. Intermediate risk was defined as stage cT2b-T2c, Gleason score 7, and PSA level of 10 to 20 ng/mL. Finally, high risk was defined as stage cT3a and/or Gleason score 8 to 10 and/or PSA level > 20 ng/mL.

Pretreatment Variables. The level of education was dichotomized into "less than high school" (low) and "high school or more" (high). Relationship status was dichotomized into "no paired relationship" versus "paired relationship." Comorbidity (yes vs. no) was defined for any patient reporting ≥ 1 of 5 co-existing adverse health conditions: (1) diabetes; (2) heart failure, myocardial infarction, and/or angina; (3) stroke; (4) peptic ulcer and/or irritable bowel disease, and (5) asthma and/or bronchitis and/or breathing problems.

EPIC Questionnaire. Before any treatment and 2 to 3 years after surgery, the patients completed an EPIC-26 or EPIC-50 questionnaire.[8,9] The original questionnaire included 50 items (EPIC-50)[8] but was later abbreviated to 26 items (EPIC-26).[9] These EPIC instruments assess the 5 domains most often affected by PCa treatment: urinary (2 domains), sexual, bowel, and hormonal. Each domain includes several questions with multiple choice responses. For the sexual domain, the items separate patient-reported function and domain-specific bother.[8,9] Within each domain, a score can be calculated. The answers can also be dichotomized, resulting in categories that are probably easier to understand by patients than scores.[11] However, no definition of ED and sexual problems has been provided for the EPIC. The present report included the dichotomized responses to 2 identical items in the sexual domain in the EPIC-26/50, 1 addressing sexual function and 1 sexual problem experience.

The answers for question (Q)9/Q28 "How would you describe the usual quality of your erections during the last 4 weeks?" were dichotomized as NoED (erection firm enough for intercourse) and ED (erection firm enough for masturbation and foreplay only but not firm enough for any sexual activity or none at all).

The answers for Q12/Q39 "Overall, how would you rate your ability to function sexually during the last 4 weeks?" were dichotomized into sexual problems (described as a moderate or large problem) and no sexual problems (described as small, very small, or no problems).

Data Management and Statistical Analysis

Binary variables are described using proportions and percentages. Crude between-country differences regarding the categorical variables were analyzed using χ^2 tests.

ED and sexual problems 2 to 3 years after treatment for all patients were the dependent variables on the univariate and multivariate regression analyses. The strength of the associations is expressed by odds ratios (ORs) and 95% confidence intervals (CIs). ED and sexual problems were also assessed in the subgroup of men with NoED before treatment.

$P < .01$ was considered statistically significant. All tests were 2-sided. PASW for personal computers, version 21.0, was used for the statistical analyses.

Results

The medical records for 1353 patients who had undergone prostatectomy were available from the United States, Norway, and Spain. Because of ≥ 1 missing answers for Q9 and Q12 at baseline and/or at 2 to 3 years, 109 American, 155 Norwegian, and 12 Spanish patients were excluded from the study, for 1077 eligible men (United States, n = 494, Norway, n = 472, Spain, n = 111).

Compared with the Norwegian and Spanish patients, the American patients were significantly younger and reported fewer