Quality of Life for Patients Treated for Penile Cancer

Jacobien M. Kieffer,* Rosa S. Djajadiningrat,* Erik A. M. van Muilekom, Niels M. Graafland, Simon Horenblas and Neil K. Aaronson†

From the Division of Psychosocial Research and Epidemiology (JMK, NKA) and Department of Urology (RSD, EAMvM, NMG, SH), Netherlands Cancer Institute, Amsterdam, the Netherlands

Purpose: We assessed the impact of primary surgery, including penile sparing surgery vs (partial) penectomy and lymphadenectomy, on sexuality and health related quality of life.

Materials and Methods: We invited 147 patients surgically treated for penile cancer at our institution between 2003 and 2008 to complete the IIEF-15, SF-36®, IOC (version 2) and questions on urinary function. We evaluated the impact of primary surgery type and lymphadenectomy on these outcomes. We also compared patient SF-36 scores with those of an age and gender matched normative sample from the general Dutch population.

Results: A total of 90 patients (62%) returned a completed questionnaire. Surgery type and extent were not associated significantly with most of the study outcomes assessed. However, men who underwent (partial) penectomy reported significantly more problems than those treated with penile sparing surgery, including orgasm (effect size 0.54, $p = 0.031$), appearance concerns (effect size 0.61, $p = 0.008$), life interference (effect size 0.49, $p = 0.032$) and urinary function (83% vs 43%, $p < 0.0001$). Men who underwent lymphadenectomy reported significantly more life interference (effect size 0.50, $p = 0.037$). The patient sample scored significantly better than the normative sample on the SF-36 physical component ($p = 0.044$) and the bodily pain subscale ($p < 0.001$).

Conclusions: Few differences were observed in sexuality and health related quality of life as a function of primary surgery and lymphadenectomy. However, (partial) penectomy and lymphadenectomy were associated with more problems with orgasm, body image, life interference and urination. Additional longitudinal studies are warranted to evaluate individual changes with time in these outcomes.

Key Words: penis; carcinoma, squamous cell; quality of life; sexual dysfunction, physiological; questionnaires

Abbreviations and Acronyms

ES = effect size

HRQOL = health related quality of life

IIEF-15 = International Index of Erectile Function

IOC = Impact of Cancer, version 2

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* Equal study contribution.

† Correspondence: Division of Psychosocial Research and Epidemiology, Netherlands Cancer Institute, Plesmanlaan 121, NL-1066 CX Amsterdam, the Netherlands (telephone: +31 20 512 2481; FAX: +31 20 512 2322; e-mail: n.aaronson@nki.nl).

PENILE cancer is relatively rare (0.58/100,000 men) in the industrialized countries of the world.[1,2] However, in regions of Africa, South America and Asia the incidence of penile cancer can be up to 5 times higher.[3] Penile cancer and its treatment can seriously impact sexuality and intimacy, body image, urinary function, mental health and HRQOL.[4,5]

Surgical treatment of penile cancer varies as a function of primary presentation and subsequent recurrences. Although historically (partial) penectomy has been the primary treatment,[6] more recently various

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penile sparing procedures were introduced.[7–10] Lymph node dissection is performed when needed as determined by the sentinel lymph node procedure.[11,12]

Relatively little empirical research has been done on the effect of penile cancer treatment on patient sexuality and HRQOL.[13] A systematic review identified 1 prospective and 5 retrospective studies published between 1985 and 2008 with a sample size of 14 to 36 patients.[14] Penile cancer treatment negatively affected well-being in up to 40% of patients with decreased sexual function in up to 60%.[14] Only 1 study with a small sample size of 30 men included different surgical procedures.[13] Another review focusing on qualitative studies emphasized that most men treated for penile cancer report changes in their sense of masculinity.[15,16]

We assessed the impact of primary surgery, including penile sparing vs (partial) penectomy and lymphadenectomy, on sexual functioning and HRQOL in a larger sample of patients treated for penile cancer.

MATERIALS AND METHODS

Participants

Participants were consecutive patients who underwent surgery for penile cancer at our institution between 2003 and 2008. Study exclusion criteria were distant metastasis, palliative treatment only, chemotherapy, recurrent penile cancer at the last outpatient visit, a second primary tumor or insufficient command of the Dutch language.

Procedure and Study Measures

The study was performed in accordance with institutional ethical guidelines. All patients provided written, informed consent. Consenting patients were asked to complete a questionnaire and return it in a prepaid envelope.

Sociodemographic information was obtained via the questionnaire. Clinical data, including the diagnosis and nature of treatment, were retrieved from the electronic medical records. Surgery type was organized as penile sparing surgery (laser/local excision with or without circumcision, or glans amputation with or without reconstruction) vs penectomy or partial penectomy. Partial penectomy was performed only if it was anticipated that the remaining stump would be sufficient for urinating upright. Otherwise penectomy was done with perineal stoma construction. Lymphadenectomy (one/two-sided groin or one/two-sided pelvis) was dichotomized as performed or not performed. If there were multiple treatments, patients were classified into the subgroup representing the most invasive treatment.

Sexual function was assessed with the IIEF-15,[17] which includes the subscales erectile function, orgasmic function, sexual desire, intercourse satisfaction and overall satisfaction. Response options are on a 5 or 6-point scale with a higher score reflecting a more positive response. We adapted response categories to include a category termed not applicable. This was done in response to comments made by some men during testing that they were upset by the fact that many questions implied that they were sexually active. Not applicable responses were interpreted as meaning that the patient had not experienced the sexual behavior or feeling posed by the question.

HRQOL was assessed by the Dutch language version of the SF-36.[18,19] This questionnaire is organized into 8 subscales, including physical functioning, role-physical, role-emotional, bodily pain, social functioning, mental health, vitality and general health. Higher order physical and mental component summary scores can also be calculated. All scales were linearly converted to a 0 to 100 scale with higher scores representing better functioning.

The IOC[20] was used to assess other HRQOL outcomes. It is organized into 2 higher order scales, including positive impact and negative impact. The positive impact scale is further divided into the 4 subscales altruism and empathy, health awareness, meaning of cancer and positive self-evaluation. A higher score on a subscale/scale represents stronger agreement and, thus, a more positive response. The negative impact scale also includes 4 subscales, that is appearance concerns, body change concerns, life interferences and worry. A high score on the negative impact scale or its subscales indicates a more negative response. Additional subscales assess employment and relationship concerns (partnered and not partnered).

We also included several study specific questions on urinary problems, including difficulty with and reasons for not being able to aim the urinary stream while standing without leakage and satisfaction with the ability to urinate.

Statistical Analysis

Descriptive statistics were used to characterize the study sample. Group differences (ie surgery types and lymphadenectomy) in sexuality and HRQOL outcomes were evaluated by ANOVA/ANCOVA. We adjusted for age, education, marital status and time since surgery when there were significant group differences in these variables. Statistically significant group differences, considered at $p < 0.05$, were accompanied by ES. According to Cohen, an ES of 0.2, 0.5 and 0.8 is considered small, moderate and large, respectively.[21] Urinary problems were analyzed using the chi-square test. Patient SF-36 scores were compared with those of an age and gender matched sample of the Dutch general population.[19]

RESULTS

Sample Sociodemographic and Clinical Characteristics

Of 147 patients invited to participate in the study 92 returned a completed questionnaire. Complete clinical data were unavailable on 2 patients, resulting in a final sample for analysis of 90 (61% response rate). Table 1 lists sample sociodemographic and clinical characteristics. Mean age of the sample was 65.4 years (range 35.7 to 99.5) and most patients were Caucasian (86) and married (83%). Approximately