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Assessment of quality of life in patients surgically treated for penile cancer: Impact of aggressiveness in surgery

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ABSTRACT

Purpose: Health-related quality of life (HRQoL) evaluations are being increasingly used for clinical assessment of cancer treatment outcomes. For a patient, not only is life expectancy important, but also a general sense of sustained global health. Intuitively, the more disfiguring the treatment, the more pronounced could be the deterioration in the QoL. We aimed to compare various aspects of QoL in three groups of patients surgically treated for penile cancer by local excision, partial penectomy, or total penectomy.

Methods: HRQoL was assessed in 51 patients surgically treated for penile cancer. Total penectomy, partial penectomy, or wide local excision was performed in 11, 27, and 13 patients, respectively. The EORTC QLQ-C30 questionnaire was used for HRQoL assessment. Relations between the patients and their partners were also assessed.

Results: Statistically significant negative correlation was found between aggressiveness of the surgical procedure and both, assessment of global health status ($p = 0.04$) and physical functioning ($p = 0.047$). The more aggressive the surgery, the lower was the patients' assessment of their QoL. Among the patients who maintained their partner relations postsurgery, 58.9% declared that their relations postoperatively were not inferior compared to those preoperatively. There was no statistically significant effect of the surgery type on relations with female partners ($p = 0.619$).

Conclusion: The magnitude of disfigurement caused by surgical treatment of penile cancer had a significant impact on the selected QoL domains assessed by the EORTC QLQ C-30 questionnaire. There was no correlation between the scope of surgical intervention and partner relations.

1. Introduction

Penile cancer is a rare malignancy. In 2010, there were 232 de novo cases (Barnholtz-Sloan et al., 2007) of and 89 deaths due to penile cancer in Poland (Wojciechowska and Didkowska, 2013). These figures are similar to those from other Western European countries, but were significantly lower than those observed in Africa, South America, and Asia (Barnholtz-Sloan et al., 2007; Parkin et al., 2010; Christodoulidou et al., 2015).

Surgery is the standard treatment applied in penile cancer, although less invasive methods have also been used in precancerous conditions or in the early stages of malignancy (Pizzocaro et al., 2010; Van Poppel et al., 2013). Surgical treatment involves resection of the primary lesion, partial or total penectomy with or without inguinal lymphadenectomy, depending on the clinical indications or histopathological status of the primary lesion (Shabbir et al., 2014; Protzel and Hakenberg, 2013). Two centimeters of healthy tissue is considered to represent a safe margin, although there is no clear consensus on this, and a recent report (Korets et al., 2007) has indicated that a < 1-cm margin may be acceptable in case of partial

Abbreviations: HRQoL, Health-related quality of life; QoL, Quality of life; EORTC, European organization for research and treatment of cancer.

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penectomy.

Intuitively, surgical treatment of penile cancer should be the least destructive, with the least possible detrimental effect on quality of life (QoL) (Zukiwskyj et al., 2013; Antunes et al., 2007; Ficarra et al., 2000). However, there is limited support for this notion. Most scientific analyses have been based on small groups of patients, and usually focused on a single surgical method, and is retrospective in nature (Hakenberg et al., 2015). Assessments of the effects of surgical treatment are usually related to single domains of QoL, and the variety of tools used in those assessments makes comparison of their results impossible (Maddineni et al., 2009; Branney et al., 2013a, b). In addition, engaging male patients with penile cancer in a study assessing their QoL raises practical, methodological, ethical, and emotional challenges for the researchers, and they need to be properly equipped for this task (Witty et al., 2014).

The aim of our study was to investigate whether there are differences in the various dimensions of QoL, or in partner relations of patients undergoing surgery of various levels of aggressiveness (local excision, partial penectomy, total penectomy).

2. Patients and methods

Patients who were surgically treated for a suspicious penile lesion between June 2007 and June 2013 were enrolled. The study was approved by the local Bioethics Committee (approval number KB-411-3-13). All patients provided written informed consent for participation and access to personal data prior to the start of the study. All patients received and returned anonymous questionnaires by mail.

Patients were stratified according to the level of aggressiveness of the surgical procedure: group 1—circumcision or wide local resection (low aggressiveness of the surgical procedure); group 2—partial penectomy (medium level of aggressiveness); group 3—total penectomy with perineal urethrotomy (high level of aggressiveness).

All surgical procedures were performed by a group of 4 experienced urologists. Simultaneous bilateral inguinal lymphadenectomy did not disqualify subjects from participation in the study.

2.1. Research tools

The EORTC QLQ-C30 questionnaire developed by the European Organization for Research and Treatment of Cancer (EORTC)—version QLQ C-30 v3.0 (Polish version available from the EORTC website) was used for global assessment of QoL (Aaronson et al., 1993). The questionnaire consists of 30 questions grouped into five sub-scales reflecting global health status, physical functioning, role functioning, emotional functioning, cognitive functioning, and social functioning. Questions regarding the global QoL and health are scored from 1 to 7 (where 1 represents very poor and 7 represents excellent health conditions and QoL). The remaining questions of the questionnaire are scored from 1 to 4 (never, sometimes, often, and very often). A respondent chooses one answer to each question. The lower the total score, the higher the QoL assessment.

Moreover, study participants provided their assessment of their partner relations by choosing one option to describe the status of their relationship after the surgery as follows: the same as before the surgery, or inferior or superior to the pre-surgical status.

2.2. Statistical methods

Spearman's non-parametric correlation (rho) test and the chi-squared test were applied to determine the correlation between the aggressiveness of the surgical procedure and QoL and the quality of partner relations.

3. Results

Fifteen of 81 patients who were surgically treated died during the period of analysis. QoL questionnaires were sent to the remaining 66 patients in June to July 2014. Of that group, 5 patients contacted the researcher to declare their decision not to participate in the study. Ten patients provided no response, despite repeated contact by mail. Finally, 51 patients (71% of responses) qualified for further analysis. The patients' mean age was 60 years (range: 28–83 years). The mean lapse of time between the surgery and the time of the study was 36.3 months (range: 14–83 years). Surgical treatment was the basic therapeutic method applied in all patients. Total penectomy with perineal urethrotomy was performed in 21.6% of patients, and partial penectomy in 52.9%. All patients declared a heterosexual orientation. Table 1 presents the social and geographical data.

The level of global QoL and levels of other domains of QLQ C-30 in relation to the aggressiveness of surgery are presented in Table 2. In order to better understand the influence of penile surgery on QoL, data from the present study have been shown alongside the results generated for certain selected populations (general population, patients with genito-urinary cancer, and all male patients with cancer) in the EORTC reference study (Scott et al., 2008). Statistically significant negative correlation was found between the aggressiveness of the surgery and the global health status (rho = -0.3; $p < 0.05$), and between the aggressiveness of the surgery and the physical functioning (rho = -0.3; $p < 0.05$) (Table 3). These results indicate that the more aggressive the surgery, the lower the patients' assessment of their global QoL and physical functioning was.

Among all the cases where patients maintained their partner relations after the surgery, 58.9% declared that their relations were not inferior to before the surgery (1 patient declared an improvement in his partner relations). The type of surgery did not have an effect on patients' relations with their partners ($p > 0.05$).

4. Discussion

The clinical stage, histology, localization of the tumor, and anatomy of the sexual organs are the main elements affecting the decision on the scope of penile surgery (Hakenberg et al., 2015; Maddineni et al., 2009; Scott et al., 2008). The preferences of the patient, and an attempt at minimum disfigurement even if associated with a higher risk of local recurrence, should always be considered while selecting the final method of treatment (Mydlo, 2011; Sosnowski et al., 2016; Jakobsen, 2015; Sedigh et al., 2015). In a previous study, 7 of 25 men treated for penile cancer declared after treatment that they would have preferred a scheme of treatment associated with lower long-term survival, but with a higher QoL (Opjordsmoen and Fossa, 1994). Results of numerous studies indicate that patients' QoL is associated with the level of disfigurement caused by a therapeutic procedure (Hakenberg et al., 2015; Opjordsmoen and Fossa, 1994; Kieffer et al., 2014; Mortensen and Jakobsen, 2013; D'Ancona et al., 1997).

In the present study, we found significant negative association between the global QoL, physical functioning, and the level of disfigurement caused by a surgical procedure ($p < 0.05$ and $p < 0.04$, respectively). No similar association was observed for other domains. Patients with low or intermediate education comprised a significant part of the study group with nearly half of the subjects lived in rural areas or in small towns. This may be associated with strong stereotypes of manhood, the role of males in