

Reconsidering the use of the International Index of Erectile Function questionnaire in evaluating the preoperative erectile function status of patients undergoing radical prostatectomy

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OBJECTIVE

To assess the use of the International Index of Erectile Function (IIEF), routinely used in patients being treated for localized prostate cancer, including potency-preserving, nerve-sparing radical prostatectomy (RP), as many patients complain that the results of the IIEF over 4 weeks before RP are not representative.

PATIENTS AND METHODS

The study included 123 consecutive patients (mean age 64.6 years, range 52–78) who had endoscopic-extraperitoneal RP and who completed the IIEF. The interval between the

diagnosis of the disease and surgery was >4 weeks in all. The patients completed the same questionnaire referring to the last 4 weeks before their prostate biopsy, as a modified index of their sexual status (IIEFm and EFm).

RESULTS

The clinical stage of disease was cT1c (34.9%), cT2a (49.5%), cT2b (5.7%) and cT2c (9.9%) before RP. The mean IIEF score was 42.8 and the mean EF domain score was 16.9; the mean IIEFm was 54.9 and the EFm domain score was 23.7. All the differences were statistically significant ($P < 0.001$).

CONCLUSION

The IIEF questionnaire scores are influenced by many factors. Depression after a diagnosis of cancer, and the prostate biopsy-related symptoms, e.g. prostatitis, perineal pain and haemospermia, might compromise the patients' well-being and libido, and thus affect the IIEF scores before RP. We therefore suggest using the IIEFm and EFm scores before prostate biopsy to assess the patients' sexual status before any treatment for localized prostate cancer.

KEYWORDS

prostate cancer, erectile function, IIEF score

INTRODUCTION

Prostate cancer has become a major health problem due to its high incidence and prevalence. Prostate cancer constitutes 11% of cancers in men in Europe, with almost 2.6 million new cases per year [1]. Since the use of PSA testing there has been a dramatic stage migration, with most patients presenting with clinically localized and thus curable disease. While oncological long-term results are excellent with established standard treatments, the health-related quality-of-life (QoL) issues, including preservation of sexual function, have become increasingly important.

Erectile dysfunction (ED) is one of the most prevalent side-effects of treatments for localized prostate cancer, including radical prostatectomy (RP). ED occurs in 10–100% of patients after RP [2]; the wide variation is due to many factors, including patient selection, surgical technique and sexual function before RP. The evaluation of (preoperative) erectile

function is mainly based on a self-assessment using questionnaires such as the International Index of Erectile Function (IIEF) [3].

Although the IIEF is a validated standard instrument, its reliability is often limited and questioned in this setting, as this assessment is based on the last 4 weeks before completion (by definition). It is possible that the diagnosis of cancer and a prostate biopsy could influence the IIEF scores, due to psychological stress and prostate biopsy-related discomfort (i.e. pain, haemospermia, prostatitis, etc.). The aim of the present study was to reassess the best timing of the IIEF in patients undergoing RP for clinically organ-confined prostate cancer.

PATIENTS AND METHODS

The study included 123 consecutive patients (mean age 64.6 years, range 52–78) with clinically organ-confined prostate cancer admitted for endoscopic-extraperitoneal

RP from September 2005 to May 2006. All patients had standardized evaluation including the IPSS, QoL index and IIEF-15 questionnaires. The time from prostate biopsy was >4 weeks in all patients. In addition to the standard evaluation, all patients were asked to complete another IIEF-15 questionnaire referring to the 4 weeks before prostate biopsy (modified IIEF, IIEFm). Erectile function domain scores (EF and EFm, respectively) were calculated from IIEF and IIEFm questionnaires. In this study only the EF domain of the IIEF score was evaluated, as the major and most representative part of the IIEF for EF; we focused on the EF of the patients, as there is no validated index of the ejaculatory function before and after the prostate biopsy. The data were analysed using the non-parametric Mann-Whitney test.

RESULTS

All patients had clinically organ-confined prostate cancer; 43 had cT1c (34.9%), 61 had

Value	IIEF	IIEFm	EF	EFm	TABLE 1 Statistical analysis of the study data for 123 patients
Missing	0	0	0	0	
Mean	42.8	54.8	16.9	23.6	
Median	48.0	62.0	19.0	27.0	
SD	21.1	17.5	10.0	6.3	
Range	3.0–73.0	1.0–73.0	1.0–30.0	1.0–30.0	

cT2a (49.5%), seven had cT2b (5.7%) and 12 had cT2c (9.9%). All the patients that were randomly included in the study returned completed questionnaires; this was rather unusual for a clinical study, because they completed them as part of their preoperative medical examination, which was particularly important both for the patients and for the attending urologists.

The mean IPSS was 8.56 and the mean QoL index was 1.89; these values were not compared with the results before biopsy as that was not the main object of the study. The mean (SEM, SD) total IIEF-15 score was 42.8 (1.9, 21.1) and the EF domain score was 16.9 (0.9, 10.0). The mean total IIEFm score was 54.8 (1.6, 17.5) and the mean EFm domain score was 23.6 (0.7, 6.3). The differences between the IIEF-15 and IIEFm-15, and between the two EF scores, were statistically significant ($P < 0.001$; Table 1).

DISCUSSION

Prostate cancer is the most common malignancy in men in many countries, and thus a major healthcare issue. The widespread use of PSA testing [4] has led to a dramatic stage migration, with most cancers now diagnosed in younger patients with clinically organ-confined and thus curable stages [5]. In this respect the QoL outcomes, including preservation of sexual function, have become a more important issue.

Apart from tumour-related variables (i.e. PSA level, Gleason sum, number and location of positive biopsies, percentage of infiltrated tissue, clinical tumour stage, etc.) [6] patient age and the preoperative sexual status are important variables for determining the extent of a nerve-sparing RP. The most widely used instrument to assess preoperative sexual status is the patient self-reported IIEF. This validated questionnaire addresses aspects of human sexual behaviour and status, with separate domains for EF, orgasmic function, sexual desire, ejaculation, intercourse and

overall satisfaction [3]. The IIEF questionnaire can be used both prospectively and retrospectively. We asked our patients not only to report an actual but also the recollected status of their sexual function. The retrospective use of the IIEF was validated and confirmed as reliable by Karakiewicz *et al.* [7]. A recent review [8] of sexual potency before RP showed that adequate potency is reported by 43–84% of men. Interestingly, in a recent study, Salonia *et al.* [9] showed that 56.8% of patients with prostate cancer who subjectively reported full potency before planned nerve-sparing RP had an IIEF score suggestive of some ED. Furthermore, a mean of 18% of patients (and up to 38% of those with severe ED) had no sexual activity before surgery. The IIEF questionnaire assesses the sexual status of patients over the previous 4 weeks; this interval does not seem to be representative of overall sexual function, as noted by many patients.

Therefore, we aimed to assess the sexual status of patients within the 4 weeks before prostate biopsy, using the IIEFm and EFm, and compared it to the standard IIEF and EF before RP. These intervals did not overlap, as there was 4–8 weeks between the biopsy and RP in all patients. The rationale for the study was the assessment by most patients that the prostate biopsy and the diagnosis of prostate cancer was a 'turning point' in their lives, with major implications on all aspects of their daily living, including sexuality.

The overall mean IIEF and EF domain scores showed that the present patients had mild ED; this finding was expected from the mean patient age, with the usual prevalence of predisposing risk factors for ED, and comorbidities such as diabetes mellitus, smoking, hyperlipidaemia, and the use of concomitant medications. In addition, psychological and emotional stress obviously affects most patients with cancer.

The same patients reported higher total IIEF and EF domain scores for the 4 weeks

before their biopsy. In trying to identify the reasons behind this finding, there are both psychological and organic causes. Almost all of the patients reported major psychological stress after their biopsy. A procedure for the diagnosis of a malignant disease and the possible consequences carries an inherent fear. The diagnosis of cancer always represents an emotional burden and concern about the outcome of the biopsy or the life-expectancy after treatment has a major impact on libido and QoL [10]. This emotional stress affects not only men but also their partners, resulting in a dysfunctional and abnormal sexual life [11].

In addition, it was shown that 36% of patients have perineal pain after prostate biopsy, and report that this symptom alone is very debilitating [7]. This pain can be acute but also delayed, and can last up to 4 weeks after biopsy, being a restricting factor for any sexual activity. Furthermore, the symptoms of acute (up to 1.2%) [12] or subacute prostatitis and chronic perineal discomfort might affect the patient's libido. Also, pyrexia is reported in 3.5% [12] and haematuria in up to 74.4% of patients for ≥ 3 days [13]. These symptoms might also adversely affect the patients' sexual life. In addition, haematospermia can be present in up to 78% of patients for up to 11 days after biopsy [13]. All these symptoms were reported by the present patients in ratios similar to those reported previously. Apart from the related discomfort of haematospermia, some patients fear that transmitting the disease to their partners, through unprotected sexual intercourse, might be possible, causing them to abstain from any sexual activity.

The right time to evaluate EF in a man with prostate cancer and facing RP is important; it has a serious effect not only on the decision for or against a nerve-sparing technique, but also on the beginning of 'penile rehabilitation' by giving low-dose phosphodiesterase-5 inhibitors after RP.

The evaluation of EF after RP and the expectation of its improvement can be measured and compared with the EF before biopsy; furthermore, the IIEF questionnaire should be evaluated after RP at ≥ 4 weeks after starting 'penile rehabilitation'. Any previous assessment would include the short phases before and immediately after RP, when no or minimal EF is possible or representative. Thus the present study could be extended in

the future by a thorough evaluation of the IIEF score and its accuracy at significant sample times, e.g. early or late in 'penile rehabilitation'.

In conclusion, prostate cancer has become a major health issue affecting men in many countries. With the introduction of the widespread use of PSA testing there has been an increase in younger patients diagnosed with localized prostate cancer who are possible candidates for nerve-sparing RP. The standard IIEF-15 and EF domain scores referring to the 4 weeks before completing the questionnaire do not accurately reflect the sexual status of patients with clinically localized prostate cancer undergoing RP. The patients reported that their sexual life after the biopsy was significantly compromised by both psychological stress and organic problems. As assessing the patients' sexual status before RP can significantly affect decision-making and surgical technique (i.e. extent of nerve-sparing), we suggest that IIEF and EF domain scores should be assessed for the 4 weeks before the prostate biopsy.

CONFLICT OF INTEREST

None declared.

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Abbreviations: RP, radical prostatectomy; IIEF(m), International Index of (Erectile Function) (modified); ED, erectile dysfunction; QoL, quality of life.