Nursing Care Program for Erectile Dysfunction After Radical Prostatectomy

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The prevalence of erectile dysfunction (ED) in 114 patients with prostate cancer treated with radical prostatectomy was examined to determine the efficacy of an ED care program in which nurse-provided education plays a fundamental role in the detection and follow-up of ED as well as in treatment compliance. The nursing program consists of four visits during which specific treatment-related information, education and support, active listening, and selection of the treatment best suited to each patient (in consultation with the healthcare team) are provided. One month following bladder catheter removal, 77 of the 114 patients (69%) in the study had ED, with a majority suffering from severe ED. A nursing care program could help minimize ED and enable patients to adapt to their new situation.

Prostate cancer is the most frequently diagnosed malignant tumor in men, with an estimated 241,740 new cases diagnosed in the United States in 2012, leading to about 28,170 deaths (American Cancer Society, 2012). The factors that determine the risk of developing prostate cancer are not completely known, although a few have been identified such as increasing age, ethnic origin, and heredity. European and American Cancer Society guidelines for the early detection of prostate cancer include annual screening by digital rectal examination (DRE) and serum prostate-specific antigen (PSA) levels for men aged 50 years or older who have a 10-year life expectancy (Smith, Cokkinides, & Eyre, 2006). In localized stages, radiotherapy or radical prostatectomy surgery, either by conventional open approach or laparoscopy, is considered optional. Neither technique is devoid of complications. The most common medium- and long-term complications are erectile dysfunction (ED) and urinary incontinence (Escudero et al., 2006). These complications also are the source of the greatest concern for men with organ-confined prostate cancer faced with the option of a radical surgery or radiation, as the treatment directly and notably impacts their quality of life (QOL).

ED is defined as the inability to attain or maintain an erection that is firm or of sufficient duration as to have satisfactory sex (Brock et al., 2003). The probability of suffering from ED increases following a radical prostatectomy; 29%–75% of men subjected to this surgical procedure are estimated to develop ED (Stanford et al., 2000). This percentage varies according to the type of treatment (65% radical prostatectomy and 63% radiotherapy) (Alemozaffar et al., 2011).

The importance of appropriate diagnosis and treatment of ED is considered to be one of the most challenging in the authors' urology department. Diagnosis and treatment of ED should be specific in accordance with the patients' individual needs. Surgical treatment is a commonly performed procedure for the management of prostate cancer. Although documented oncologic outcome for early-stage disease is excellent, functional impairments such as ED are common after the procedure. Monitoring post-treatment ED should be mandatory to better identify and assess patients with this issue (Moskovic, Miles, Lipshultz, & Khera, 2011). After standard surgery, the onset of ED is almost immediate and recovery is slow, possibly requiring as many as two years. The frequency of preservation or recovery of the erectile ability is variable and depends on the approach used (40%–60% when the bundles are spared). However, preservation of the neurovascular bundles is not possible in all patients who have a radical prostatectomy (Montorsi et al., 1997).

Several treatments are in place for managing ED, including oral medications (5-phosphodiesterase inhibitors), prostaglandins, and surgery for placement of a prosthesis. The priorities a man places on sexuality and on having a sexually functioning
partner are important factors in sexual satisfaction at follow-up (Schover et al., 2002).

Nursing's commitment to promoting sexual health and addressing sexuality concerns of individuals and groups is reflected, to some extent, in the standards of care and research agendas endorsed by leading professional organizations (Ballard, 2004). In 1980, the North American Nursing Diagnosis Association included sexual dysfunction in its list of nursing diagnoses and, in 1986, it added altered sexuality patterns (Carpentino, 1989). The importance of nurses knowing about sexual health, human sexuality, and sexual function and dysfunction is further emphasized by a growing body of literature addressing the sexuality concerns of adolescents, older adults, and patients with acute and chronic illnesses (Black & Hawks, 2005).

A nursing program targeting patients with ED after radical prostatectomy could be useful in helping patients to adapt to this new situation. Nurses can provide specific treatment-related information to men who are faced with making treatment decisions for prostate cancer and then, in consultation with the healthcare team, the patient can select the best-suited treatment (Galbraith, Ramirez, & Pedro, 2001). In addition, nurses should use active listening to encourage the patient to discuss ED-related problems (Manderson, 2005). Nurses should actively include partners in all information and education sessions connected with prostate cancer treatment and follow-up (Galbraith, Pedro, Jaffe, & Allen, 2008).

Sexuality underpins much of what a person is and it has significance in everyone's life. Through sexuality, people express their most intimate feelings of individuality and their need for emotional closeness with other human beings. Nurses need to have an understanding of the issues affecting men with ED because they may have a crucial part to play in its dynamic progress. At the authors' urology department, ED is a side effect often observed in patients treated with radical prostatectomy. Because of this, continuous follow-up is performed after the patient's admission, including information about the surgical treatment and the pre- and postoperative periods. At discharge, staff in the urology department provide the patient with the nursing room report, a two-page leaflet with information about the outpatient office visiting schedule, and information about ED. The main objective of the nursing program is the early detection of ED, which enables healthcare providers to select those patients who can most benefit from such treatment, with faster recovery being a goal of care. Nurses are in a key position to assess health-related QOL and sexual function concerns for prostate cancer survivors and their partners (Galbraith, Arechiga, Ramirez, & Pedro, 2005).

The first objective of the current study was to determine the prevalence of ED in patients who had a radical prostatectomy. The second objective is the application of an ED care program (EDCP) for selected patients and to describe its efficacy. Nurse-provided education plays a fundamental role in the detection and follow-up of erectile dysfunction, as well as in support for treatment adherence. The EDCP consists of four visits providing specific treatment-related information, education and support, active listening, and, in consultation with the healthcare team, selection of the ED treatment best suited to the patient.

Methods

Data were collected for this prospective longitudinal trial of 114 patients from April 2007 to April 2008. The patients underwent radical prostatectomy for prostate cancer by either the laparoscopic (43%) or a retropubic approach (57%). Patients with a bladder catheter related to other associated pathologies were excluded from the trial. In the course of their admission, the patients received the informed consent necessary to participate in the trial. This study follows the ethical guidelines for human subjects and has obtained the approval of the ethical committee at Hospital Clinic, University of Barcelona, in Spain.

Data Collection

The International Index of Erectile Function (IIEF) impotence questionnaire (Rosen et al., 1997) is composed of 15 items used to assess various aspects of sexual function (see Figure 1). The answers to each of the questions range from 0 (for questions 1-10) or 1 (for questions 11-15), meaning absence of any sexual activity or inability to have intercourse, to 5 (for all questions), meaning almost always or very satisfied. These items may be grouped into five dimensions or fields: erectile function (questions 1-5 and 15, possible score ranging from 1-30), orgasm function (questions 9 and 10, possible score ranging from 0-10), sexual desire (questions 11 and 12, possible score ranging from 2-10), satisfaction obtained from intercourse (questions 6-8, possible score ranging from 0-15), and overall satisfaction (questions 13 and 14, possible score ranging from 2-10). In addition, the questionnaire has a global score that can be obtained by adding up the scores obtained from all the items (possible score range = 5-75). ED corresponds to a score lower than 16. The score obtained from the questions related to the erectile function field (1-5 and 15) are used to categorize ED as mild, moderate, or severe, whereas values from 6-10 indicate severe ED, from 11-16 indicate moderate ED, and 17 and higher indicate mild ED.

Data Analysis and Nurse Care Program

The questionnaire was completed by the patients prior to the surgical intervention, one month after bladder catheter removal, and again one year following surgery.

Phase 1: Prior to surgery, the nurse in charge of the EDCP interviewed the patient and provides written information on the possible side effects of the surgery and the importance of their early detection; they point out that their sexual activity may be affected by the modification of the nerve fibers responsible for erectile function. During the interview, the nursing team tries to resolve their doubts and they are informed on the nature of the EDCP and the possibility of participating, as well as being able to leave at any time. Once the patient's doubts are resolved,
1. How often were you able to get an erection during sexual activity? 
2. When you had erections with sexual stimulation, how often were your erections hard enough for penetration? 
3. When you attempted sexual intercourse, how often were you able to penetrate (enter) your partner? 
4. During sexual intercourse, how often were you able to maintain your erection after you had penetrated (entered) your partner? 
5. During sexual intercourse, how difficult was it to maintain your erection to completion of intercourse? 
6. How many times have you attempted sexual intercourse? 
7. When you attempted sexual intercourse, how often was it satisfactory for you? 
8. How much have you enjoyed sexual intercourse? 
9. When you had sexual stimulation or intercourse, how often did you ejaculate? 
10. When you had sexual stimulation or intercourse, how often did you have the feeling of orgasm or climax? 
11. How often have you felt sexual desire? 
12. How would you rate your level of sexual desire? 
13. How satisfied have you been with your overall sex life? 
14. How satisfied have you been with your sexual relationship with your partner? 
15. How do you rate your confidence that you could get and keep an erection?

FIGURE 1. Questions From the International Index of Erectile Function


and if he is interested in participating, informed consent is obtained. The patient is asked to score on the IIEF questionnaire their perceptions of the four weeks prior to surgery.

Phase 2: During the hospital stay, the questionnaire is included in a dossier containing data related to the associated comorbid illnesses that also may affect ED, including diabetes mellitus, arterial hypertension, and cardiomyopathies, as well as an evaluation of the treatment adherence of the patient. It also includes the characteristics and possible incidences of surgery. On the day of discharge, patients are reminded of the EDCP schedule, are given an appointment for four weeks after the removal of the bladder catheter, and are informed of the possibility of attending with their partner.

Phase 3: Four weeks after phase 2, the EDCP nurse addresses the patient’s mood and invites the partner to participate. The patient will again fill in the IIEF questionnaire. If sexual relations have not begun or are unsatisfactory because of ED, more information is given by the doctor to the patient and his partner on available treatments including oral medication, intracavernosal injection, or penis prosthesis. The patient, together with his partner, if applicable, must decide whether he wants to consult with the ED specialist. At this visit, treatment usually is started with oral medication (5-phosphodiesterase) as long as the patient has no contraindications. The EDCP nurse will explain how to take this medication, approximate duration of the effect, and its secondary effects. The follow-up of this treatment is carried out monthly via telephone or visits.

Patients who do not see results with pharmacologic treatment are remitted to the doctor where they are offered second-line therapies such as intracavernosal injections of prostaglandin. Before use, the patient or his partner must show sufficient skill in the injection technique. The injection must be administered in the lateral part of the cavernosal body, far from the urethra and dorsal vascular bundle. The first injections must be administered by health personnel in the doctor’s office, progressively increasing the dose until achieving a constant erection lasting no more than 60 minutes. Once the dose has been adjusted and after adequately training the patient or his partner, the injection can be self-administered. The EDCP nurse helps the patient and his partner determine the lowest dose required to obtain a good erection without associated complications.

In addition, telephone support is offered for any follow-up questions that the patient or partner might have, as well as to request new appointments with the EDCP nurse.

Phase 4: One year after surgery, all patients (including those who did not want treatment) are interviewed by the EDCP nurse to evaluate their current situation. In this visit, an empirical evaluation is made of the changes that most affect a patient’s life habits and current treatment is noted. The IIEF questionnaire is filled in for the fourth time.

Statistical Analysis

Descriptive statistical analysis was conducted using SPSS®, version 14.0. The mean and the median were used as centralization measures for quantitative variables. As to qualitative variables, absolute and relative frequencies are considered. Spearman test was used for correlations of comorbid conditions and ED. Statistical significance was established at α value lower than 0.05 (two-tailed).

Results

A total of 114 patients took part in the study, with a mean age of 59 years (range = 46–67). Comorbid conditions (risks factors for ED) included 15 patients (13%) with diabetes mellitus, 45 patients (40%) with hypertension, and 25 patients (22%) with heart conditions.

Table 1 shows the scores collected from each of the IIEF questionnaires during the preoperative period, four weeks after bladder catheter removal, and one year postsurgery. A total of 26 patients (23%) presented with ED before surgery. No
correlation was found between any of the risk factors (hypertension, diabetes mellitus, heart condition) and ED (p = 0.51, p = 0.79, and p = 0.51, respectively). The evaluation performed one month after bladder catheter removal showed that the percentage of ED had increased to 69% (n = 77). Of these patients, 4 (5%) presented with mild ED, 3 (4%) with moderate ED, and 70 (91%) with severe ED. All were referred to their urologist with the aim of starting treatment for their ED.

Of the 77 patients, 10 rejected treatment for their ED, 7 patients started treatment with intracavernosal prostaglandin, and 60 patients started with 5-phosphodiesterase inhibitor. Of those 60, 46 patients were treated with intracavernosal prostaglandin after the failure of the oral treatment. Practically all patients who required intracavernosal prostaglandin treatment contacted the EDCP nurse either via telephone or in person during their next scheduled visit to discuss ED and treatment-related problems. The nursing support played an essential part in initiating and carrying out follow-up visits for this treatment. Only two patients in oral treatment were in touch about doubts regarding treatment.

Twelve months after surgery, 71 patients (62%) still suffered from ED. ED was mild in 40 patients (56%), moderate in 7 patients (10%), and severe in 24 patients (34%). Of all the patients with ED, only 21 (18%) were still on ED treatment. Of these patients on treatment, five were on intracavernosal prostaglandin and the rest (n = 16) received oral treatment.

Table 1 shows remarkable differences between pretreatment and one month following surgery, particularly regarding satisfaction and orgasmic function. A slight improvement is noted for the results obtained after one month and one year following radical prostatectomy, the most remarkable one being satisfaction. This finding endorses the EDCP to a certain extent because it shows that the program has been an essential tool in the follow-up of patient treatment. The high rate of withdrawal from treatment by the patients was attributed to ED treatment failure or personal decisions despite the multidisciplinary help, care, and education provided.

**Discussion**

Thanks to advancements in the diagnosis and treatment of prostate cancer, the life expectancy of patients following diagnosis is consistently increasing. This fact highlights the need for optimal follow-up and treatment of any potential complications. ED is one of the main problems caused by prostatectomy (Abrams et al., 2002). The prevalence found in the current trial is no different from the rest of the series published in the literature (Magheli & Burnett, 2009; Mirza, Griebling, & Kazer, 2011). The negative impact of ED is an issue deserving specific attention from healthcare providers because of long-term implications on QOL.

Another point to be considered is continuous and systematic patient follow-up. In addition to providing further information on their status to patients, use of this follow-up and the IIEF questionnaire creates a situation where healthcare providers can detect any doubts on the patients’ behalf. In this sense, nurses are involved in patients’ follow-up and promote and stimulate dialogue with the patients. In the current study, many patients (68%, n = 78) were free to consult with the urology team early on about some aspects of their pharmacologic treatment. In this sense, the level of involvement of the urologist with patients with ED is vital for recovery from ED (McCullough, Barada, Fawzy, Guay, & Hatzichristou, 2000). After radical prostatectomy, healthcare providers should start administering three drugs currently on the market: sildenafil, vardenafil, and tadafil (Brock et al., 2003). The remaining 30% of the patients chose to postpone their scheduled medical visit to address their ED issues. Reasons given included low spirits as a consequence of the disease or surgery or until they recover complete urinary continence.

The EDCP nurse carries out an exhaustive follow-up of all patients so that the problems associated with ED can be discussed in a relaxed atmosphere. In addition, the nurse has had an active role in resolving questions regarding treatment—the key point to the EDCP—not only acting as a patient support but also resolving any doubts that patients may have. Communication and information are two key health instruments, and they should be used to promote health education and understanding among patients subjected to radical prostatectomy.

**Conclusion**

The significance and the value of ED consultations are based on the nurse’s ability to listen to the patient, to understand patients’ personal circumstances, and to propose solutions and treatments that are most suitable in each case. Regular follow-up visits and questionnaires are important to identify

**TABLE 1. International Index of Erectile Function (IIEF) Questionnaire Results From Three Time Points**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Presurgery</th>
<th>One Month Postsurgery</th>
<th>One Year Postsurgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erectile function</td>
<td>X Score</td>
<td>X Score</td>
<td>X Score</td>
</tr>
<tr>
<td>Organ function</td>
<td>3</td>
<td>1.2</td>
<td>2</td>
</tr>
<tr>
<td>Sexual desire</td>
<td>2.3</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td>Satisfaction from intercourse</td>
<td>2.5</td>
<td>1.0</td>
<td>2</td>
</tr>
<tr>
<td>Overall satisfaction</td>
<td>3.0</td>
<td>3.0</td>
<td>2</td>
</tr>
<tr>
<td>Mild erectile dysfunction</td>
<td>–</td>
<td>4.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Moderate erectile dysfunction</td>
<td>–</td>
<td>3.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Severe erectile dysfunction</td>
<td>–</td>
<td>7.0</td>
<td>9.0</td>
</tr>
</tbody>
</table>

N = 114

Note. Erectile function consists of questions 1–5 and 15 on the IIEF; orgasm function, questions 9–10; sexual desire, questions 6 and 11–12; satisfaction from intercourse, questions 7–8; and overall satisfaction, questions 13–14. Scores range from 0 (none) to 5 (almost always or always) for questions 1–10, and 1 (almost never or very dissatisfied) to 5 (almost always or very high) for questions 11–15.
these problems and for the purpose of subsequent research. But considering that the most important element within a treatment is the patient, the nurse’s role as the person who listens, resolves doubts, and is an expert professional makes them a fundamental piece in the follow-up of patients suffering from ED. The data obtained confirms the existence of real problems affecting patients following surgery. The nursing staff should be a part of everyday attention to mitigating health problems such as ED.

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References


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