

# Erectile Dysfunction as a Complication After Treatment of Prostate Cancer

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## PROFESSIONAL PAPER

### SUMMARY

**Introduction:** Treatment of localized prostate cancer refers to two basic modes which are the radical retro pubic prostatectomy and external radiotherapy. However, according to most authors, radical prostatectomy is the gold standard for long-term survival. Objective: To determine the occurrence of erectile dysfunction after radical operative treatment and irradiation therapy. **Material and methods:** In this paper we have examined the occurrence of erectile dysfunction after conducted treatment for localized prostate cancer. In this paper we have examined 84 of 138 patients who underwent radical retro pubic prostatectomy at the Urology Clinic in the period from January 2009 to December 2010 and 26 patients who underwent radical external radiotherapy in the same period, because of localized prostate cancer. Results: The average age of surgical patients was 65 years, the youngest patient was 49 years and the oldest 81 years. From the 84 patients which underwent surgery, neurovascular preservation of nerve bundles was done in 36 (42.8%) patients from which bilateral in 28 patients (77.7%) and unilateral in 8 patients (22.2%). Average age of patients who underwent irradiation therapy was 68 years. **Conclusion:** Erectile dysfunction occurs in greater proportion after radical retro pubic prostatectomy compared to radiation treatment, and the preservation of both neurovascular bundles reduces this difference.

**Keywords:** erectile dysfunction, prostate cancer, radical treatment.

## 1. INTRODUCTION

Prostate cancer is nowadays one of the most common cancers of men (1, 2, 3, 4). The use of prostate specific antigen (PSA) screening, enabled the detection of a large number of patients in early stage of localized cancer (5, 6). Patients with localized prostate cancer undergo either radical prostatectomy or radiotherapy. Both treatment options have side effects. First of all, these are usually micturition disorder, i.e. urinary incontinence and erectile dysfunction. These unwanted effects reduce the quality of life in cancer patients. Today, with early detection of prostate cancer, increasing is the number of treated patients also with longer survival, and to the quality of life is given more prominence. Erectile dysfunction after surgery occurs primarily due to neurogenic damage and to a lesser extent due to vascular damage. In most patients the cause of erectile dysfunction after external radiation therapy is of vascular nature. Disorders of sexual function after treatment of prostate cancer includes both organic and psychogenic factor because the diagnosis of cancer can lead to anxiety and depression.

## 2. PATIENTS AND METHODS

In this paper we have examined the occurrence of erectile dysfunction after therapy carried out for localized prostate cancer. In this paper we have examined 84 of 138 patients who underwent radical retro pubic prostatectomy at the Urology clinic in the period from January 2009 to December 2010 and 26 patients who underwent radical external radiotherapy in the same period, because of localized prostate

cancer. Choice of treatment depended on the patient's age and general condition, primarily cardiovascular comorbidity. In the same two-year period, 68 patients were subjected surgical castration and transurethral resection (TUR) of the prostate due to advanced prostate cancer.

Patients filled out a questionnaire for an international index of erectile function before the treatment and 6 months after the treatment (International Index of Erectile Function (IIEF5) questionnaire). Included were patients who were and were not taken after treatment medications for improving sexual function. From the study are excluded patients who were not followed for a given period of the study, and patients who preoperatively did not have a preserved sexual function. Data were collected from medical history and data on patient age, PSA before treatment, other diseases, tumor stage and grade, smoking. Both groups of patients have been compared to data from the history of the disease using the X2 test.

## 3. RESULTS

In the study were examined 84 of 138 patients who had undergone radical retro pubic prostatectomy and 26 patients who were treated with radiotherapy during the same period. The average age of surgical patients was 65 years, the youngest patient was 49 years and the oldest 81 years.

The average age of patients treated with radiation therapy was 68 years. These data show that patients who underwent radiotherapy were older which is associated with poorer sexual function and more frequent cardiovascular and

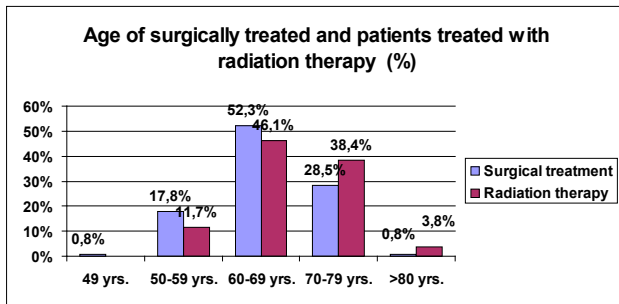


Figure 1. Age of surgically and patients treated by radiation therapy

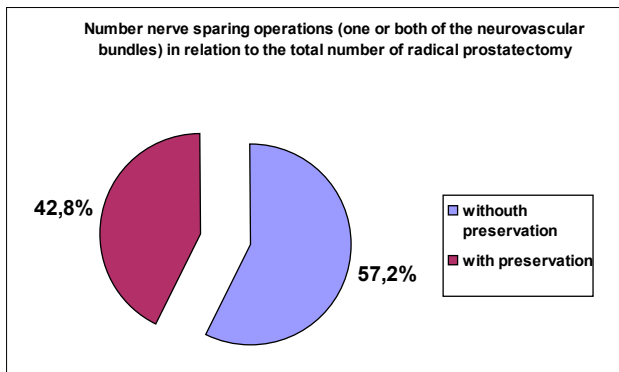


Figure 2. Number nerve sparing operations (one or both of the neurovascular bundles) in relation to the total number of radical prostatectomy

other diseases. Calculated mean TPSA before treatment in a group surgical patients was 6.947ng/ml (TPSA values ranged from 1.026 to 26.051 ng/ml). In the group of patients with localized prostate cancer who underwent irradiation the calculated the mean TPSA was 7.3 ng/ml Of 84 patients underwent surgery, preservation of neurovascular bundles was done in 36 (42.8%) patients from which bilateral in 28 patients (77.7%) and unilateral in 8 patients (22.2%).

	Radical prostatectomy		Radical radiation therapy
	Preserved one NV bundle	Preserved both NV bundles	
Number of patients (n)	8	28	26
Number of patients with preserved sexual function (n)	3 (37.5%)	16 (57.1%)	19 (73.0%)

Table 1. Erectile function 6 months the after treatment of patients with prostate cancer

Sexual function after the treatment in patients treated with radiotherapy was significantly better compared to patients who were surgically treated. In the case of bilateral nerve sparing surgery, erectile function was preserved in 16 patients (57.1%). In the case of unilateral preservation the erectile function was preserved in 3 patients (37.5%)

When examined 26 patients with localized prostate cancer who had prior treatment had preserved sexual function and who underwent radiotherapy, sexual function was preserved in 19 (73%). (Figure 1-2, Table 1).

## 4. DISCUSSION

Radical prostatectomy and radiation therapy as treatment options for localized prostate cancer are associated with erectile dysfunction. Radical prostatectomy according to all studies, in the higher level.

In this paper, we come to the conclusion that the erectile dysfunction occurs in greater proportion after radical retro pubic prostatectomy compared to radiation treatment, and the preservation of both neurovascular bundles reduces this difference. According to Walsh (1994)–72% of patients after radical surgical treatment with sparing both of the neurovascular bundles, achieved satisfactory erections in 33% using Sildenafil. It should be noted that patients who were surgically treated were younger and had fewer other illnesses. Patients in whom it was possible to preserve both neurovascular bundles have a greater percentage of preserved sexual function than the patients who have one spared neurovascular bundle. According to studies the sexual function was 6 months after surgical or radiation treatment of localized prostate cancer is almost two times lower in surgically treated patients compared to those treated with radiation therapy. In patients who were treated with radiotherapy, the incidence of erectile dysfunction depends on sexual function before surgery, radiation dose and follows up period. Since the cause of erectile dysfunction after radiotherapy is primary vascular damage, it is considered that the incidence of erectile dysfunction increases with time.

According to studies, although erectile dysfunction occurs more slowly after irradiation, and therefore it is less obvious, it is still present in up to 30% of cases. According to Turner and colleagues, 36% of patients with adequate erectile function before treatment have erectile dysfunction after 12 months and the percentage increases to 59% after 24 months. It should be noted that according to the literature may be expected recovery of sexual function 2 years following the surgical treatment (according to Walsh potential recovery of 72-86% between 12 months and 18 months) after radiotherapy, eventually coming to a decrease in sexual function, so that is very important during the evaluation of sexual function after the treatment. Test results are congruent with other studies done.

## REFERENCES

1. Junuzović Dž. Postoperativna i jatrogena erektilna disfunkcija u EREKILNA DIS-FUNKCIJA, Junuzović Dž. Sarajevo: Institut za naučnoistraživački rad i razvoj KCUS; 2007, 47-48.
2. Welz S, Nyazi M, Belka C, Ganswindt U: Surgery vs. radiotherapy in localized prostate cancer. *Radiat Oncol* 2008, 3:23.
3. Gwede CK, Pow-Sang J, Seigne J, Heysek R, Helal M, Shade K et al. Treatment decision-making strategies and influences in patients with localized prostate carcinoma. *Cancer* 2005; 104: 1381
4. Clark JA, Inui TS, Silliman RA, Bokhour BG, Krasnow SH, Robinson RA, et al. Patients' perceptions of quality of life after treatment for early prostate cancer. *J Clin Oncol* 2003;21:3777-84.
5. Meuleman EJH, Mulders PFA. Erectile function after radical prostatectomy: a review. *Eur Urol* 2003;43:95-102
6. Sanda MG, Dunn RL, Michalski J, Sandler HM, Northouse L, Hembroff L, et al. Quality of life and satisfaction with outcome among prostate-cancer survivors. *N Engl J Med* 2008;358:1250-61

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