Men with prostate cancer have several treatment options, including surgery, hormonal therapy, and radiation. All of these treatments have their pros and cons and sexual issues, such as erectile function, are a common concern for patients.

One type of radiation treatment is prostate brachytherapy, which involves placing radiation as close as possible to the prostate cancer cells. The radiation may be delivered through wires (temporary brachytherapy) or with radioactive seeds that remain in the prostate (permanent brachytherapy).

Brachytherapy may be used alone or in conjunction with other treatments. Side effects include problems with urination, blood in the urine or stool, and diarrhea.

Erectile dysfunction (ED) is another possibility. But to what extent might brachytherapy patients experience ED? And what factors could make a man more or less likely to develop ED after treatment?

In a recent study published in Radiotherapy and Oncology, Australian researchers considered these questions in regard to a group of 366 patients who underwent seed brachytherapy. The men ranged in age from 42 to 80 (mean age 62) at the time of their seed implant and did not receive any other type of prostate cancer treatment during the study period. The mean follow-up period was 41 months.

Using the 5-item International Index of Erectile Function (IIEF), the researchers assessed the men’s erections both before and after treatment. At the start of the study, 76% of the men had normal erectile function and 24% had mild ED. Five percent of the men used phosphodiesterase type-5 inhibitors (PDE5i) before treatment.

After treatment, 39% of the men said they were using PDE5i medication for ED.

The authors determined that the overall 5-year actuarial rate of erectile function (EF) preservation was 59%. This percentage of men had "no worse than mild ED."

However, rates varied depending on the following factors:
• **Age.** Men who were under age 60 when they had their seed implant fared better with an EF preservation rate of 69% compared to a rate of 50% for men who were 60 and older.

• **Medical comorbidities.** Conditions like hypertension, diabetes, and ischemic heart disease affected EF preservation rates. Participants with comorbidities had a preservation rate of 47%. For those without such medical conditions, the rate was 64%.

• **Gleason score.** A man’s Gleason score measures the likelihood that his prostate cancer will spread, based on scientific analysis of the tissue. Gleason scores range from 2 to 10 with higher scores indicating more aggressive cancer and a higher likelihood of cancer spreading. In this study, men with a Gleason score below 7 had an EF preservation rate of 73%. For men with a Gleason score of 7, the rate was 18%.

• **Biologically effective dose.** Men who received less than 150 Gy of radiation had a preservation rate of 74%. The rate 52% for men who received 150 Gy or more.

“In our analysis, we showed that EF preservation post-[seed brachytherapy] is multifactorial, and was influenced by a combination of patient-, tumor-, and treatment-related factors,” the authors noted.

What might these rates mean for clinicians? They can help us counsel our patients who are weighing the pros and cons of different types of prostate cancer treatment. Of course, a man’s oncologist can best guide him on his individual situation. However, being aware of these preservation rates, and other sexual issues that can result from treatment, may help us better understand our patients’ decision-making process.

**Resources**

*Mayo Clinic*

“Prostate brachytherapy”

(February 26, 2014)


*National Cancer Institute*

“Gleason score”

Radiotherapy and Oncology

Ong, Well Loon, et al.

“Long-term erectile function following permanent seed brachytherapy treatment for localized prostate cancer”

(Full-text. Article in press. Published online: July 30, 2014)

http://www.thegreenjournal.com/article/S0167-8140(14)00258-8/abstract