Penile rehabilitation and neuromodulation.

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Abstract

Erectile dysfunction (ED) following treatment for clinically localized prostate cancer, particularly radical prostatectomy (RP), is a major quality of life issue that remains unsatisfactorily addressed. With the introduction and use of cavernous nerve-sparing procedures over the past 25 years, many men recover erections postoperatively that enable sexual intercourse unlike in the prior surgical era, when permanent ED postoperatively was certain. Despite this advance, 26-100% of these patients may never recover normal erectile function (EF). Recent advances in the understanding of ED after RP have stimulated great attention to develop penile rehabilitation programs and neuromodulation. The purpose of penile rehabilitation is to prevent adverse corpus cavernosal tissue structural alterations and thereby maximize the chances of recovering functional erections. Rehabilitation programs are common in clinical practice, but there is no definitive evidence to support their efficacy. Neuromodulation represents another strategy for promoting erection recovery postoperatively. This therapy involves the application of neuroprotective interventions, conceivably targeting biological elements involved in the erection response that are affected by neuropathic injury. Well-conducted, controlled trials with adequate follow-up are required in order to determine the erection preservative benefits of these therapeutic strategies. The purpose of this essay is to describe the mechanisms related to post-RP ED, assess the need for penile rehabilitation and neuromodulation following surgery, and analyze the basic science and clinical trial evidence associated with these applications for preserving EF following prostate cancer treatment.