COMMENTARY

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Peyronie disease and erectile dysfunction: A potential new paradigm

Peyronie disease (PD), first reported in 1743 as a disease,[1] is now recognized in most cases to be the result of coital trauma to the penis. In 1997, Devine et al suggested that poor rigidity during penetrative sex causes delamination of the elastic covering (tunica albuginea) of the penile corpora cavernosa.[2] The scar that forms as healing takes place is usually palpable, and this "plaque" and the erectile deformity are manifestations of PD.[2]

According to the National Institutes of Health consensus panel on impotence, erectile dysfunction (ED) is defined as the consistent inability to attain or maintain an erection of the penis sufficient to permit satisfactory sexual intercourse on more than 50% of attempts.[3] Secondary ED that presents after a period of normal sexual function is preceded by declining penile rigidity with erection until a threshold is reached at which ED can be considered to exist.

Although PD and ED are linked, it is not clear which comes first owing to the lack of literature and studies regarding the timing of PD and ED onset.[4,5] Men who have erections with decreased rigidity, even if still capable of penetrative sex and not yet diagnosed with ED, are at risk for penile fractures and PD.[5]

REPORTED PREVALENCE OF PEYRONIE DISEASE

According to the Peyronie's Disease Guidelines panel of the American Urological Association, PD prevalence ranges from 0.5% to 20.3%, noting that rates are historically underestimated and may be higher among male patients who present with comorbidities.[6] Further, the panel stated that the most common presentation is in the male patient in his mid-50s with recent onset of penile curvature accompanied by mild to moderate pain.[6]

The reported prevalence of PD varies, but a compelling study of 534 patients ages 40 to 75 who presented for prostate cancer screening[4] noted the presence of a penile nodule in 48 patients (8.9%) that significantly correlated with age, diabetes, hypertension, and ED. PD has been associated with other factors such as family history,[7] autoimmune disease,[8] and Dupuytren contracture;[7] although these factors do not typically account for high prevalence of PD.

Peyronie disease is recognized in most cases to be the result of coital trauma to the penis associated with erectile insufficiency or erectile dysfunction

MANAGEMENT AND PREVENTION

The Peyronie's Disease Guidelines panel of the American Urological Association characterized PD symptoms as having a variable course, noting that some symptoms may improve or resolve without treatment in some patients.[6] For most, pain will resolve over time without intervention although curvature is less likely to resolve. It is important to distinguish between active disease that is characterized by penile pain or discomfort with or without erection and stable disease with symptoms clinically unchanged for at least 3 months.[6]

When treating patients with ED or PD, it is important to gather information by asking the patient to compare current erectile rigidity on a scale of 10, with the normal range at age 20 being 10/10. Current erections with ri-

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gidity scores of 6/10 or greater are sufficient for intromission; but with coital thrusting, damage to the tunica albuginea is more likely than with a normal erection (10/10). In PD injuries, the forces are not great, many are silent, and they may recur although this is unknown because they are silent. Recurrent injuries may account for the variation of duration of the active phase of PD.

Thus, ED is not a yes-or-no diagnosis but occurs on a spectrum. Patients with decreased erectile rigidity that has not reached the threshold for ED defined by the National Institutes of Health are able to have penetrative sex but with increased risk of injury. I have suggested the term *erectile insufficiency* to describe this prodromal period while considering erectile insufficiency and ED, and I have posited that PD is the consequence and not the cause,[5,9] thus allowing for the possibility to prevent PD in patients with erectile insufficiency.

Oral medications for ED, ie, phosphodiesterase type 5 (PDE5) inhibitors, are generally not prescribed without the formal diagnosis of ED. However, if prescribed earlier, when only erectile insufficiency is present, the increased rigidity that would likely result would lessen the chance of injury, thus making coitus safer.

Men who have erections with decreased rigidity are at risk for penile fractures and Peyronie disease

Long-term use of these agents has demonstrated safety,[10] and measures to improve erections such as smoking cessation, weight loss, exercise, and decreased alcohol use should be advised.[11] Additionally, the following recommendations should be offered to the patient and his partner:

- During coitus, manually guide the penis in or back in if it comes out
- Ensure adequate lubrication
- Avoid the partner-on-top position
- Thrust straight in-and-out to avoid torque on the penis
- Avoid coitus if the man is tired or has consumed too much alcohol.[5,9]

Ideally, men would be aware of these recommendations before they develop PD. These practices should be discussed with all at-risk patients, including those with newly diagnosed PD.

SURGICAL MANAGEMENT

Men with PD who are not sexually active or who have sexual activity not involving penetration can be reassured that PD does not affect their health, and treatment is not necessary. If the patient with PD wants to have penetrative sex, straight and reliably firm erections are required.

If the PD patient has good rigidity after a trial of a PDE5 inhibitor, penile straightening can be accomplished surgically by tunica albuginea plication.[12] Penile straightening can also be attempted by plaque collagenase injections[13] with or without the use of a traction device.[14] Plaque excision or incision with placement of a graft is another way to straighten the erection. However, this more extensive surgery often increases erectile insufficiency and ED and, consequently, is usually avoided.[12] Treatment for ED involving intracavernosal injection of vasoactive medications is best avoided in patients with PD, as this mode of therapy may lead to increased deformity.[15]

If PD does not respond to a PDE5 inhibitor trial with increased erectile rigidity, then implantation of a penile prosthesis should be considered.[16,17] Inflatable penile prostheses straighten erections, and the reliability of these erections assure that repetitive injuries will not occur.[16,17]

CLINICIAN EXPERIENCE

Evidence from the literature has been insufficient to constitute evidence-based diagnosis and treatment for PD.[6] As a result, the American Urological Association uses a variety of sources for their recommendations, including expert opinion. Their 2015 PD guidelines are based primarily on clinical principle or expert opinion.[6] According to Sackett, evidenced-based medicine integrates individual clinical expertise with the best available evidence from systematic research.[18]

It has been through my years of experience with patients with PD, as well as the adoption of the paradigm noted above, that I have been able to provide effective relief for these patients. However, prospective studies to test this hypothesis are very difficult to execute.

DISCLOSURES

The author reports no relevant financial relationships which, in the context of his contributions, could be perceived as a potential conflict of interest.

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