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## Chronic Pain and Male Sexual Dysfunction

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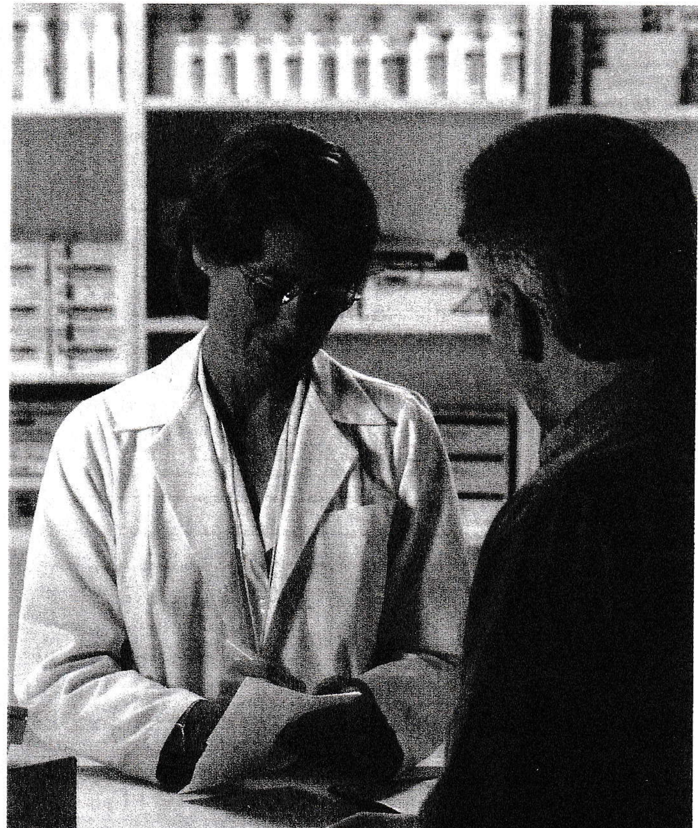
# CHRONIC PAIN & MALE SEXUAL DYSFUNCTION



Chronic pain — and some medications required to control it — may lead to sexual dysfunction, depression, and generate a self-reinforcing cycle.

by Randall Lee Oliver, MD and
April Taylor, RN, BSN, CDE

Erectile dysfunction (ED) is a problem with increased incidence in males having chronic pain. Any one of the multiple conditions that are present in chronic pain can lead to erectile dysfunction[1] (see Table 1). Depression, anxiety and pain have both physical and emotional consequences that may hinder sexual relations. Loss of self-esteem due to chronic pain consequences is compounded when sexual problems arise. A loss of manhood may be perceived and degraded interactions with a spouse may trigger depression from the loss of intimacy. Emotionally, chronic pain leads to problems with self-image, self-esteem and role-expectation conflicts. Pain causes more fatigue and thereby reduces work productivity which, in turn, leads to lower self esteem and potential sexual dysfunction. Stress from strained sexual relations can cause increased insomnia, which can lead to more fatigue and pain. This destructive cycle is typically self-reinforcing.[2]

One study has shown that the chronic stress of pain, itself, often leads to underproduction of adrenal hormones. The pituitary and adrenal glands are responsible for the regulation of sex hormones, including testosterone (an anabolic steroid). The reduced production of sex hormones can lead to sexual dysfunction.[3] Those who experience emotional or stress-related problems are more likely to experience sexual dysfunction.

Use of chronic opioids has also been shown to significantly lower serum testosterone, serum LH, libido and potency.[4,5]

## Types of Sexual Dysfunction

Male sexual dysfunction may be classified as premature ejaculation, erectile dysfunction, or decrease in libido. Premature ejaculation occurs more often in the younger male population and has been found to have little affect on quality of life perception.[6] Erectile dysfunction, defined as the inability to achieve or sustain a penile erection for sexual intercourse, occurs more often in the older male. Decreased libido also occurs more with age or as an affect of decreased testosterone levels. Libido can be assessed with a testosterone serum level assay or conducting an ADAM (Androgen Deficiency in the Aging Male) survey.[7]

## Erectile Dysfunction

There is a strong association between erectile dysfunction and decreased quality of life in the chronic pain patient. Erectile dysfunction falls into either of four categories: vascular, neurogenic, endocrine and psychogenic.

A vascular cause of erectile dysfunction is either arterial in origin or venous. Venous is the most common and is a result of an occlusion in venous flow to the area. Causes of vascular erectile dysfunction can be hypertension, diabetes, dyslipidemia, and smoking. The components of cigarette smoke not only decrease flow to the pelvic organs, but it also leads to cardiovascular disease and hypertension. The most accurate diagnostic screen is to evaluate the response to intracavernous injections of a vasoactive drug. An inadequate response indicates a vascular impotence.

Spinal cord injury, prostate surgery or lumbar disc disorders can cause neurogenic erectile dysfunction. This is a common problem in pain patients who have had spine trauma. Diagnosis is made by electromyography of the corpus cavernosum.

An endocrine deficiency of testosterone or thyroid may also lead to erectile dysfunction. It is recommended that endocrine testing (which may include serum testosterone, prolactin, or luteinizing hormone) be done routinely by the pain physician.

| Causes of sexual dysfunction in the chronic pain patient |
|---|
| Depression |
| Low self-esteem causes perceptions of a lack in manhood leading to performance anxiety. |
| Pain during sexual positions |
| Strained relationship with partner due to decreased productivity and a strain on role expectations |
| Medications to treat pain (SSRI's, Neurontin, and Opioids) |
| Stress-induced reduction in steroid type hormones, including testosterone |
| Fatigue |
| Insomnia |
| Fears of causing further pain ("setting off the pain") |

TABLE 1.

| Risk Factors for Erectile Dysfunction |
|---|
| CHRONIC DISORDERS |
| Diabetes |
| Cardiovascular disease |
| Renal failure |
| Osteoarthritis |
| Spinal injury |
| Pelvic surgery |
| Endocrine deficiencies |
| Hypertension |
| Chronic Pain |
| LIFESTYLE |
| Alcohol abuse |
| Drug abuse |
| Smoking |
| PSYCHOLOGICAL |
| Depression |
| Anxiety |
| Relationship problems |
| Children/others in the home |
| Occupation |
| MEDICATIONS |
| Beta Blockers |
| Thiazides |
| Antidepressants |
| Opioids |
| Antiepileptics |

TABLE 2.

Psychogenic causes include performance anxiety and depression. The treatment of erectile dysfunction may decrease depression by as much as 50%. Testing begins by testing for nocturnal erections. A Rigiscan can be performed at home. The Rigiscan is a simple test that measures firmness throughout the night since erections normally occur during sleep. If erections continue to occur while asleep, but the patient cannot achieve an erection while awake, he is experiencing psychogenic impotence. Further evaluation may be necessary by a mental health professional.

It is not necessary to distinguish between vascular or neurogenic erectile dysfunction. Many physicians feel that after the history and physical, an initial trial of Sildenafil citrate is adequate preliminary testing. However, if the patient is unresponsive to Sildenafil citrate, further testing is warranted.[8]

## Patient History

Multiple conditions can lead to erectile dysfunction (see Table 2). With each additional condition, the risk is increased. A thorough history for these conditions may open a door for discussion and an understanding of the cause. It is important to be cautious and respectful when discussing the history of a man's sexual performance and possible causes. Sexual functioning is important to a typical male's quality of life and sense of adequacy. Chronic pain itself leads to feelings of inadequacy and the emotional effects of sexual dysfunction further compounds the problem.

Included in the history should be a discussion regarding the onset of the problem. A gradual decrease in ability to perform typically has an organic origin, while psychogenic erectile dysfunction usually has a sudden onset. Another cause of sudden sexual dysfunction is the initiation of certain medications (see Table 2) or drug abuse. The SHIM is a helpful tool for assessment.[9] It is a questionnaire that assigns points to answers to each question and gives a score that can be used to determine risk of sexual dysfunction.

## Physical Exam

The physician typically should assess for peyronies plague (which leads to curvature of the erection), sensation, atrophy, absence of body hair, and gynecomastia.[7] Beyond these indicators, however, there may be no physical appearance changes to indicate erectile dysfunction.

## Lab Testing

It is recommended that the physician test blood glucose for presence of undiagnosed diabetes and draw lipids for possible cardiovascular disease caused from dyslipidemia. The physician should also consider routinely testing for serum testosterone in men with severe, chronic pain and on opioid therapy. Testosterone serum concentration testing should be done in the morning when levels are the highest of day (late day samples may show a false low). When testing testosterone, FSH and LH can also be tested. A low testosterone accompanied by a high FSH/LH indicates primary testicular failure. A low testosterone accompanied by a low FSH/LH indicates primary pituitary dysfunction. This would then indicate a need to assess the prolactin level and possibly seek endocrinology consultation.

## Treatment

Treatment options include implantation, vacuum erection devices, sex therapy, injection (Caverject is 87% effective), intraurethral therapy, hormone therapy and oral medications. Oral medication is indicated for organic and psychogenic erectile dysfunction. An older, less effective treatment is Yohimbine.[10] Currently in clinical trials are Uprima (apomorphine hydrochloride) and Vasomax (phentolamine). Uprima is a sublingual central dopamine stimulant.[11] Vasomax is an alpha-adrenergic blocker, similar to the action of Yohimbine, but somewhat more effective.[10] Other drugs in develop-

ment include Vardenafil and Cialis and both increase blood flow. Alprox-TD is in trial. It can be injected or used in suppository form.[11]

Viagra (sildenafil citrate) was introduced to the general public March 1998.[12] Within the first eight months of the introduction of sildenafil citrate (Viagra) to the United States, six million prescriptions were written.[11] This is an indication of the demand for treatment of sexual dysfunction. Viagra is available in 25, 50 and 100mg tablets. It should be taken on an empty stomach for consistent results. Sixty-five percent of users of sildenafil citrate were satisfied overall with the drug. Men with severe erectile dysfunction were satisfied forty-one percent of the time. People who attempted intercourse were successful 69 percent of the time. The success rate is higher with the 100mg dose (80%) than with the 50mg dose. Sildenafil citrate works both in men with psychogenic erectile dysfunction and erectile dysfunction caused by organic reasons. Sildenafil citrate works in diabetics, vascular disease, nerve-sparing radical prostatectomy and shows some improvement in spinal cord injury.[13] It is also effective in patients with chronic back pain.[14] A trial of Viagra may also be indicated while waiting for the testosterone levels to increase or an antidepressant to become therapeutic in the chronic pain patient.

Cialis (tadalafil) is made by Lily ICOS and is reported to work faster (10-15 minutes) than Viagra (but with a similar mechanism) and lasts 24 hours. As of February 2003, Cialis was being marketed in Europe, New Zealand and Australia. It is approved for mild to severe ED and can be dosed at 10 and 20 mg. Cialis is a PDE5 inhibitor (as is Viagra) and has the same contraindications and precautions. However, the difference is in the duration of 17-24 hours after dosing. It is marketed as 36-hour duration in Australia. It also does not require any regard to food with administration.[15]

> *...testosterone has severe, critical anabolic effects including strength and tissue, bone and teeth formation.*

Vardenafil is being developed jointly by Bayer and GlaxoSmithKline to treat ED. One clinical study found Vardenafil to have no adverse affects on the vascular system meaning possibly no contraindications for the CAD patients.[15]

Treatment should not only focus on improving sexual performance, but also on treating the cause, if possible. The physician may need to simultaneously treat hypertension and low testosterone levels, as well as insomnia, depression, anxiety, and chronic pain. Hypertension should be treated with an ACE or ARB when possible, because either is less likely to cause erection problems.[7] Depression might be treated with Wellbutrin or Remeron to avoid the affects on sexual function caused by SSRI antidepressants. In addition, the physician may want to refer the patient for counseling regarding self-worth and alternate ways to express sexual desires. The intimacy and physical contact of a healthy sex life should be encouraged—not just treated when a dysfunction occurs—as there are many therapeutic benefits to touch and intimacy.

## Normalization of Hormone Levels

The underproduction of tetsosterone caused by the unrelenting stress of chronic pain and the medication to control it must

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| Testosterone Preparations | |
|---|---|
| **Oral Agents** Flouxymesterone, Methyltestosterone(Halotestin®, Android®) | • Rapid biologic degradation in GI tract and liver<br>• Serum levels may be unstable |
| **Gel Preparations** Testosterone 1% (Androgel®, Testim®) | • Applied to shoulder or chest daily (50-100mg doses)<br>• Good patient compliance and stable blood levels |
| **Injections** Testosterone Cypionate or Enanthate | • Esterized to inhibit degradation and be soluble in oil-based injection vehicles and retain drug in muscle tissue<br>• 200 to 300 mg lasts about 14 days<br>• 300 to 400 mg of testosterone enanthate maintains serum testosterone for up to 3 weeks<br>• Serum levels are initially supranormal then fall to normal over 14 days |
| **Transdermal Patch** Testosterone release of 2.5 to 7.5 mg per day. (Testoderm®, Androderm®) | • Patch applied daily<br>• Steady state blood levels are stable |

**TABLE 3.** *Available testosterone preparations. (Summarized in part from data[16] presented by Wayne JG Hellstrom, MD.)*

non-operatively.

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Elmer "Al" Pinzon, M.D. is a board-certified physical medicine and rehabilitation specialist and has completed a twelve-month subspecialty physical medicine and rehabilitation fellowship in non-surgical interventional spine, musculoskeletal medicine and pain management at Georgia Pain Physicians in Atlanta. His residency in physical medicine and rehabilitation was completed at Baylor College of Medicine in Houston, Texas.

Dr. Pinzon believes, as a physical medicine specialist, the role of a physiatrist is to help patients manage pain and to restore musculoskeletal function. To accomplish this a variety of diagnostic and treatment options are used including medication, physical therapy, electromyography and spinal injections. Clinical treatment can include intradiscal procedures (diagnostic and therapeutic) including diagnostic lumbar discography, intradiscal decompressive nucleoplasty, and IDET annuloplasty, selective spinal injections (diagnostic/therapeutic), spinal cord dorsal column stimulation, and radiofrequency ablation procedures, among others. He also serves on the Editorial Advisory Board of the *Practical Pain Management* journal.

## The Physical Facility

The SpineKnoxville clinic, in keeping with it's philosophy of conservative, exercise-centric treatment modalities, is laid out with physicians' offices on one side, the physical therapy clinic on the other side, and a large exercise area in between. The exercise area consists of resistive and cardiovascular exercise machines.

For more information, contact: Spine Knoxville, 10321 Kingston Pike, Knoxville, TN 37922; 865-694-8353; pinzoneg@ortholink.net

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be corrected since testosterone has severe, critical anabolic effects including strength and tissue, bone and teeth formation. Supplementation with pregnenolone or dehydroepiandrosterone (DHEA) which are precursors of testosterone maybe helpful.

Testosterone replacement may be necessary for an indefinite period.[5] See Table 3 for typical testosterone replacement agents that may be utilized. There may be other cost effective options available for generic formulations of creams, gels, and injections from multiple formulating companies.

## Conclusion

Chronic pain syndrome affects many aspects of life, including sexual function. Those who experience emotional or stress-related problems are more likely to experience sexual dysfunction.[6] Chronic Pain Syndrome is a combination of symptoms including pain, fatigue, insomnia, depression and anxiety. Any of these problems alone can cause emotional or stress-related problems that can lead to sexual dysfunction. In a single-center, single-physician pain practice, nineteen men with chronic low back pain and erectile dysfunction were discovered in one month's time. Eighty percent of the subjects were able to reach orgasm with Sildenafil citrate[15] indicating that interim therapies may be useful while pursuing normalizing strategies for adrenal functionality in the chronic pain patient.

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*April Taylor, RN, BSN, CDE, is a research writer on multiple projects for Dr. Oliver. She is also a diabetes nurse educator for critical cardiac care patients at Methodist Hospital, Indianapolis, Indiana.*

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