Medications That May Contribute to Sexual Disorders

A Guide to Assessment and Treatment in Family Practice

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Approximately 15% to 25% of family practice patients have concerns about sexual function and are most comfortable discussing these issues with their family physician. While many physicians have avoided this topic in the past, citing lack of knowledge and skill, the family practice setting is ideal for a preliminary evaluation of sexual dysfunction and treatment for certain etiologies. This especially is true for changes in sexual function secondary to medication effects. This article provides basic guidelines designed to assist physicians in evaluating the effects of medications and other substances on sexual function. Also included are lists of medications known or suspected to have adverse effects on sexual function. Physicians are encouraged to address the sexual concerns of their patients and to incorporate these guidelines and the medication lists into their evaluation.

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It is estimated that 15% to 25% of patients seen in family practice have concerns about sexual function.[1,2] In addition, the majority of patients report feeling most comfortable discussing these issues with their family physician, and expect that their physician will provide advice or treatment.[3] Historically, many physicians have avoided discussing sexual concerns, even when a problem is suspected, citing lack of knowledge and skills as a common reason.[4] While it is true that some of the sexual disorders likely to present in family practice settings will require referral for psychological counseling or specialist treatment, others can be successfully diagnosed and treated in the family practice setting.[5] This especially is true for cases involving medication-related changes in sexual function.

Over 1.5 billion prescriptions are written every year in the United States, which amounts to about six prescriptions per person.[6] Over two thirds of physician office visits result in one or more new prescriptions being written.[6] In addition, numerous nonprescription medications, homeopathic remedies, illicit drugs, and other substances (eg, tobacco and alcohol) likely to have an impact on physiological function are commonly used by patients seen in family practice settings. As a result, most family practice physicians can assume that many of their patients will be taking or will have recently taken medications or other substances.

Several reasons exist for focusing on the effects of these substances when assessing a patient's concerns about sexual function. Primarily, many of the most commonly prescribed medications have been suspected or implicated in the development or exacerbation of sexual dysfunctions.[7,8] Second, a medication change is often the simplest intervention, and may save the patient significant time, money, and emotional distress. Third, when multiple causative factors contribute to the disorder, removing one contributing cause (ie, medication) may restore sexual function to an acceptable level. Fourth, patients who suspect that their medications are causing a sexual disorder may make medication changes on their own if their physician does not address this issue.[9] Finally, referral for psychological treatment for a sexual problem will be ineffective or only partially effective when medications are contributing to the disorder. Consequently, when evaluating sexual disorders, it is imperative to determine the history of

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medication and other substance use and determine the role these factors may be playing in the disorder.[10]

While some medications are well documented to cause disruption of sexual function, controlled research is sparse for the majority of medications and substances implicated in the etiology of sexual disorders.[11] Most articles present anecdotal evidence or case reports.[12] Many medications cited in articles are referenced only in medication inserts, or no reference is provided. Often, the exact type of dysfunction (eg, erectile disorder, delayed orgasm) is omitted, with terms such as "sexual dysfunction" or "sexual difficulties" substituted. While a few larger studies exist, there is some question as to the accuracy of such data. Reports of erectile disorder can vary from 10% to 26% within the same sample, depending on whether the subjects fill out a self-report or are questioned directly.[13] Even direct questioning may not elicit accurate reporting. Patients completing confidential questionnaires at home are almost twice as likely to report difficulty obtaining erections as patients questioned directly in their physician's office.[14] Such data suggest that the social stigma attached to sexual disorders creates significant underreporting, and may make results from even well-controlled studies questionable. In spite of these limitations, physicians need a starting point for directing assessment and treatment.

In an effort to provide this starting point, the following is a discussion of prescription medications and other substances that have been cited as possibly having side effects that adversely affect sexual function. The accompanying tables also list the most commonly cited side effects, as well as the relative likelihood that the side effect will occur. In light of the factors discussed above, it is impossible to provide exact figures in many cases. Instead, an effort has been made to approximate the likelihood of disorders occurring with different medications. Given the number of articles used in the compilation of the tables, the references for each medication have been omitted.*

PRESCRIPTION MEDICATION EFFECTS

While many prescription medications have been implicated in disorders of sexual desire, arousal, and orgasm, medications used to treat hypertension and psychiatric disorders are most frequently cited as contributing to these dysfunctions. In family practice, sexual disorders attributable to these types of medications will be encountered most frequently.

Antihypertensive Medications

The majority of antihypertensive medications have been implicated in sexual disorders.[13] Some, however, are more likely than others to cause specific problems (Table 1). For example, diuretics (such as chlorthalidone, hydrochlorothiazide, and spironolactone),[15-18] central antiadrenergic agents (eg, clonidine, methyldopa, reserpine),[19-22] and guanethidine[23] are commonly cited as causing erectile disorder. Guanethidine has also been associated with disorders of desire and ejaculation.[24] On the other hand, beta blockers, with the exception of propranolol,[25,26] are less likely to cause erectile problems, but can cause disorders of desire in as many as half of the patients taking them.[27] Of the most commonly used classes of antihypertensives, ACE inhibitors (eg, captopril, enalapril, lisinopril) may be least likely to cause disruptions in sexual function.[11] In addition, minoxidil, hydralazine, prazosin, and furosemide rarely cause sexual side effects, although hydralazine and prazosin have been associated with priapism in case reports.

Psychiatric Medications

Psychiatric medications (Table 2) also commonly affect sexual function.[26] Antidepressants, almost without exception, cause changes in sexual response. The tricyclic antidepressants (eg, amitriptyline, amoxapine, clomipramine, desipramine, nortriptyline, protriptyline) have frequently been associated with erectile disorder and can cause a delayed or absent orgasmic response.[29,30] The newer serotonin reuptake inhibitors (SSRIs), such as fluoxetine and sertraline, while initially touted as lacking sexual side effects, are now frequently cited as causing delayed orgasm. This side effect is so universal that clinicians have used these medications to successfully delay orgasm in patients complaining of premature ejaculation.[31] For depressed patients not complaining of premature ejaculation, however, this side effect can be very distressing and may exacerbate depressive symptoms if not identified and

*A complete list of references, including a table with references cited for each medication, is available from the first author on request.

addressed. In addition, as there is no disorder in women comparable to premature ejaculation, it is unlikely that delay in orgasm in women will be seen as a beneficial side effect. Case reports of erectile disorder with SSRIs have also been noted. Finally, trazodone, while not associated with impairment in

TABLE 1

Antihypertensive Medications Associated with Sexual Disorders

Medication	Sexual Disorder
amiloride (Midamor)	decreased desire,** erectile disorder**
atenolol (Tenormin)	**erectile disorder*** **
benazepril (Lotensin)	decreased desire, erectile disorder*
chlorthalidone (Hygroton, Thalitone)	**decreased desire,*** erectile disorder*** **
clonidine (Catapres)	decreased desire,** **erectile disorder,**** delayed or retrograde ejaculation,** inhibition of orgasm (women)**
diltiazem (Cardizem, Dilacor XR)	erectile disorder *
enalapril (Vasotec)	erectile disorder**
guanabenz (Wytensin)	**erectile disorder*** **
guanadrel (Hylorel)	**decreased desire***; delayed, retrograde, or no ejaculation,*** erectile disorder*** **
guanethidine (Ismelin)	**decreased desire****; erectile disorder****; delayed, retrograde, or no ejaculation****
hydralazine (Apresoline)	erectile disorder,* priapism*
hydrochlorothiazide (Esidrix, HydroDIURIL, Oretic)	**erectile disorder**** **
indapamide (Lozol)	decreased desire, erectile disorder**
labetalol (Normodyne, Trandate)	decreased desire*; priapism*; **erectile disorder****; delayed, retrograde, or no ejaculation****
lisinopril (Prinivil, Zestril)	decreased desire,** erectile disorder**
mecamylamine (Inversine)	decreased desire,* erectile disorder*
methyldopa (Aldomet)	**decreased desire (men and women)***; erectile disorder***; delayed or no ejaculation (men) or orgasm (women)*** **
metoprolol (Lopressor, Toprol XL)	decreased desire,* erectile disorder*
metyrosine (Demser)	erectile disorder,** failure of ejaculation**
minoxidil (Loniten)	erectile disorder*
nifedipine (Procardia, Adalat)	improved erectile function,* erectile disorder,** improved orgasmic ability*
phenoxybenzamine (Dibenzyline)	**inhibited ejaculation, "dry" ejaculation**** **
phentolamine (Regitine)	erectile disorder*
pindolol (Visken)	erectile disorder*
prazosin (Minipress)	erectile disorder,** ejaculatory disorder, priapism*
propranolol (Inderal)	decreased desire (men and women),** **erectile disorder**** **
reserpine	**decreased desire (men and women),*** erectile disorder,*** decreased or no ejaculation*** **
spironolactone (Aldactone)	**decreased desire (men and women),*** erectile disorder,*** gynecomastia,*** decreased lubrication*** **
timolol (Blocadren)	decreased desire (men and women),* erectile disorder*
trimethaphan (Arfonad)	erectile disorder, decreased desire, ejaculatory failure*
verapamil (Calan, Isoptin, Verelan)	erectile disorder*

*Case report(s), package insert, or uncertain frequency;**infrequent side effect; ***frequent side effect; **** very frequent side effect.
Note: Medications and their accompanying side effects that have been cited frequently as causing sexual disorders are in bold type.

TABLE 2

Antidepressants Associated with Sexual Disorders

Medication	Sexual Disorder
amoxapine (Asendin)	decreased desire*; erectile disorder***; inhibition of orgasm*; retrograde, painful, delayed or no ejaculation*
bupropion (Wellbutrin)	decreased desire,** erectile disorder**
desipramine (Norpramin, Pertofrane)	decreased desire*, erectile disorder,* ejaculation with out orgasm,* retrograde ejaculation*, painful orgasm*
doxepin (Adapin, Sinequan)	decreased desire, ejaculatory dysfunction*
fluoxetine (Prozac)	**decreased desire,*** delayed or no ejaculation,**** lack of orgasm***
imipramine (Tofranil, Janimine)	decreased desire*; increased desire*; **erectile disorder***; painful, delayed, or retrograde ejaculation; delayed orgasm in women***
maprotiline (Ludiomil)	decreased desire,* erectile disorder*
nortriptyline (Aventyl, Pamelor)	decreased desire,* erectile disorder,* no orgasm*
paroxetine (Paxil)	erectile disorder, inhibited ejaculation, no orgasm**
phenelzine (Nardil)	decreased desire,* erectile disorder,* **retarded or no ejaculation, delayed or no orgasm (men and women)***
protriptyline (Vivactil)	decreased desire, erectile disorder, painful ejaculation*
sertraline (Zoloft)	**delayed orgasm, no orgasm****
tranylcypromine (Parnate)	decreased desire,* erectile disorder**
trazodone (Desyrel)	increased desire (women and men),* retrograde or delayed ejaculation,* anorgasmia,* **priapism***
trimipramine (Surmontil)	inhibited ejaculation*
venlafaxine (Effexor)	**abnormal ejaculation/orgasm,***** erectile disorder**

*Case report(s), package insert, or uncertain frequency; **infrequent side effect; ***frequent side effect; **** very frequent side effect.
NOTE: Medications and their accompanying side effects that have been cited frequently as causing sexual disorders are in bold type.

erection, ejaculation, or orgasm, has been reported to cause priapism.[32]

Antipsychotic medications, without exception, have the potential for disrupting sexual response (eg, thioridazine, chlorpromazine).[26] Common side effects include erectile disorder and delay of ejaculation and orgasm (Table 3), although desire disorders have also been reported.[12] While the evidence is less conclusive, other psychiatric medications may alter specific components of sexual response. For example, anxiolytics, including the benzodiazepines, may interfere with the ability to attain orgasm.[33,34] Buspirone and several antipsychotic medications have been cited as occasionally causing priapism.[28,35] Lithium and monoamine oxidase (MAO) inhibitors may impair sexual desire and erectile function.[36,37]

In short, virtually all antipsychotic and antidepressant medications, as well as a variety of other psychotropic medications, can cause disruptions in sexual function. Many patients may not report these symptoms to their physician, as they may attribute them to their psychiatric disorders, such as lack of sexual desire in a depressed patient. If unaddressed, such symptoms may have a significant impact on self-esteem and may exacerbate the psychiatric condition. Therefore, it is imperative that the physician determine whether a dysfunction exists, assess whether the dysfunction is a side effect of medication, and formulate alternative therapies.

OTHER PRESCRIPTION MEDICATIONS

Many other prescription medications in diverse therapeutic classes are frequently cited as causing sexual dysfunctions. These include carbamazepine,[38] cimetidine,[39] clofibrate,[40] danazol[41] digoxin,[42] disulfiram,[43] ketoconazole,[44] and niacin,[45] to name just a few. These and other miscellaneous medications are listed in Table 4, along with specific side effects and estimated incidences.

ILLICIT DRUGS, NONPRESCRIPTION MEDICATION, AND OTHER SUBSTANCE EFFECTS

Illicit drugs should not be overlooked in evaluating sexual disorders (Table 5). While physicians know the detrimental effects alcohol can have on sexual function, many patients still believe alcohol will improve sexual function, and they may increase alcohol consumption in response to sexual difficulties. Chronic alcohol abuse may cause hormonal

alterations and permanent damage to circulatory and nervous systems,[10,19] so determining whether there is a history of alcohol abuse, as well as current use, is also important. In addition, major and minor tranquilizers, cocaine, and even cigarettes[46,47] have been implicated in sexual disorders. So-called designer drugs (eg, MDMA, "ecstasy") have been less extensively studied, but have been implicated in changes in sexual response and function.[48] Many of these drugs may be overlooked by the patient as a potential cause of his sexual difficulty, as many of these drugs are believed to improve sexual performance by reducing inhibitions, delaying ejaculation, and so on. Any drug that decreases inhibitions and delays ejaculation is likely to have the potential to alter physiological responses necessary for effective sexual function. Although acute effects may enhance sexual function, chronic effects are typically detrimental.[11]

In addition to illicit drugs, nonprescription medications and homeopathic remedies also may cause or contribute to sexual dysfunction, albeit rarely (Table 6). These include common medications such as diphenhydramine (Benadryl)[49] and newer nonprescription medications such as naproxen (Aleve).[50] The use of herbal products should also be questioned, since many of these "all natural" products contain pharmacologically active ingredients. Again, patients are not likely to associate these substances with changes in sexual function. It is imperative that physicians be

TABLE 3

Other Psychiatric Medications Associated with Sexual Disorders

Medication	Sexual Disorder
alprazolam (Xanax)	decreased desire,** delayed or no ejaculation,** **inhibition of orgasm***
barbiturates	**decreased desire, erectile disorder, inhibited ejaculation***
buspirone (BuSpar)	decreased desire,** erectile disorder,* delayed ejaculation,* priapism*
chlordiazepoxide (Librium, Mitran, Reposans-10)	erectile disorder, delayed ejaculation*
chlorpromazine (Thorazine)	decreased desire,* **erectile disorder,***** retrograde or delayed ejaculation,* priapism**
clomipramine (Anafranil)	**decreased desire (men and women)****; **erectile disorder****; **delayed, retrograde, painful, or no ejaculation****; **inhibition of orgasm***; spontaneous orgasm associated with yawning*
clonazepam (Klonopin)	decreased desire, erectile disorder, inhibition of orgasm*
clozapine (Clozaril)	priapism*
diazepam (Valium, Zetran)	decreased desire, delayed ejaculation, retarded or no orgasm in women*
droperidol (Inapsine)	erectile disorder*
fluphenazine (Prolixin, Permitil)	**decreased desire,**** **erectile disorder,**** inhibition of ejaculation,* priapism*
haloperidol (Haldol)	erectile disorder,* ejaculatory failure,* painful ejaculation*
lithium (Eskalith, Lithonate)	decreased desire,* **erectile disorder***
lorazepam (Ativan)	decreased desire*
meprobamate (Equanil, Miltown)	erectile disorder*
mesoridazine (Serentil)	retrograde or no ejaculation,* erectile disorder,* priapism*
molindone (Moban)	priapism*
oxazepam (Serax)	decreased desire*
perphenazine (Trilafon)	**decreased or no ejaculation,****** priapism*
pimozide (Orap)	decreased desire,* **erectile disorder,***** no ejaculation*
prochlorperazine (Compazine)	erectile disorder, changes in desire, inhibited ejaculation, decreased responsiveness in women, priapism*
risperidone (Risperdal)	priapism*
sulpiride (Supril, Sulpitil)	**erectile disorder***
thioridazine (Mellaril)	**erectile disorder****; priapism*; **delayed, decreased, painful, retrograde, or no ejaculation****
thiothixene (Navane)	erectile disorder*, spontaneous ejaculation*, priapism*
trifluoperazine (Stelazine)	decreased, painful, or no ejaculation*; spontaneous ejaculation*; priapism*

*Case report(s), package insert, or uncertain frequency; **infrequent side effect; ***frequent side effect; **** very frequent side effect.
Note:Medications and their accompanying side effects that have been cited frequently as causing sexual disorders are in bold type.

TABLE 4

Miscellaneous Medications Associated with Sexual Disorders

Medication	Sexual Disorder
acetazolamide (Diamox, Ak-Sol)	decreased desire,* **erectile disorder*** **
aminocaproic acid (Amicar)	inhibition of ejaculation,* retrograde ejaculation*
amiodarone (Cordarone)	decreased desire,* erectile disorder*
atropine	erectile disorder*
baclofen (Lioresal)	erectile disorder, inability to ejaculate**
benztropine (Cogentin)	erectile disorder*
biperiden (Akineton)	erectile disorder*
bromocriptine (Parlodel)	erectile disorder,* painful clitoral tumescence*
carbamazepine (Tegretol, Atretol, etc)	desire disorder, **erectile disorder*** **
cimetidine (Tagamet)	deceased desire (men and women),* **erectile disorder,*** ** gynecomastia*
clidinium (Quarzan)	erectile disorder*
clofibrate (Atromid-S)	decreased desire, **erectile disorder*** **
cyclobenzaprine (Flexeril)	increased or decreased desire, erectile disorder, gynecomastia, testicular swelling*
danazol (Danocrine)	**increased or decreased desire*** **
dichlorphenamide (Daranide)	decreased desire*, **erectile disorder*** **
dicyclomine (Bentyl, Di-Spaz, etc)	erectile disorder*
digoxin (Lanoxin)	**decreased desire,*** ** **erectile disorder,*** ** gynecomastia*
disopyramide (Norpace)	erectile disorder**
disulfiram (Antabuse)	erectile disorder*
ethinyl estradiol (Estinyl)	**decreased desire*** **
ethionamide (Trecator-SC)	erectile disorder*
ethosuximide (Zarontin)	increased desire*
etretinate (Tegison)	erectile disorder*
famotidine (Pepcid)	erectile disorder**
fenfluramine (Fastin)	decreased desire (frequent in women with large doses or long-term use)*; erectile disorder**
furazolidone (Furoxone)	erectile disorder*
gemfibrozil (Lopid)	decreased desire, erectile disorder*
glycopyrrolate (Robinul)	decreased desire*
heparin	priapism*
homatropine methylbromide (Homapin, Equipin, Lantro)	erectile disorder*
hydrochlorothiazide (Esidrix, HydroDIURIL, Oretic, etc)	**erectile disorder**** **
hydroxyzine (Atarax, Anxanil, Vistaril)	decreased desire, erectile disorder*
indomethacin (Indocin)	erectile disorder*
interferon	decreased desire, erectile disorder*
isotretinoin (Accutane)	delayed or no ejaculation*
ketoconazole (Nizoral)	**decreased desire,*** ** **erectile disorder**** **
levodopa (Larodopa, Dopar)	**increased desire**** **
mazindol (Mazanor, Sanorex)	erectile disorder*, spontaneous ejaculation*, painful testes*
meclizine (Antivert, Bonine)	erectile disorder*
medroxyprogesterone (Depo-Provera, Amen, Cycrin, etc)	decreased desire,* erectile disorder*

Medication *(continued)*	**Sexual Disorder** *(continued)*
methadone (Dolophine)	**decreased desire,**** erectile disorder,**** no orgasm (men and women),**** retarded ejaculation******
methazolamide (Neptazane)	decreased desire (men and women),* **erectile disorder*****
methotrexate (Folex, Rheumatrex)	erectile disorder,* inability to ejaculate*
methysergide (Sansert)	erectile disorder*
metoclopramide (Reglan)	decreased desire,* erectile disorder*
metronidazole (Flagyl, Protostat)	decreased desire*
mexiletine (Mexitil)	decreased desire, erectile disorder*
morphine (MS Contin, Roxanol)	decreased desire, erectile disorder, hormonal alteration*
naproxen (Anaprox, Naprelan, Naprosyn)	erectile disorder, no ejaculation*
niacin (Nicolar, Niacor, Nicobid)	**decreased desire*****
nizatidine (Axid)	erectile disorder*
norethindrone (Norlutin)	decreased desire,* **erectile disorder*****
omeprazole (Prilosec)	erectile disorder,* gynecomastia,* painful erections,* priapism*
orphenadrine (Flexon, Flexoject, Norflex, Myolin)	erectile disorder*
oxybutynin (Ditropan)	erectile disorder*
phendimetrazine (Adphen, Bacarate, Anorex, Statobex)	decreased desire*, erectile disorder, delayed or no ejaculation, delayed or no orgasm in women*
phenobarbital	decreased desire, **erectile disorder*****
phentermine (Fastin, Ionamin)	erectile disorder, delayed or no ejaculation, delayed or no orgasm in women*
phentolamine (Regitine)	erectile disorder*
phenytoin (Dilantin)	decreased desire, **erectile disorder*****
physostigmine (Antilirium)	increased desire*
primidone (Mysoline)	decreased desire, **erectile disorder*****
probucol (Lorelco)	erectile disorder, gynecomastia, breast enlargement in women*
procarbazine (Matulane)	erectile disorder*
prochlorperazine (Compazine)	erectile disorder, changes in desire, inhibited ejaculation, decreased responsiveness in women, priapism*
procyclidine (Kemadrin)	erectile disorder*
propantheline bromide (Pro-Banthine)	erectile disorder*
propofol (Diprivan)	sexual disinhibition*
ranitidine (Zantac)	decreased desire, erectile disorder*
scopolamine (Transderm-Scop)	erectile disorder*
sulfasalazine (Azulfidine)	erectile disorder*
tamoxifen (Nolvadex)	priapism*
testosterone	priapism*
thiabendazole (Mintezol)	**erectile disorder*****
trihexyphenidyl (Artane)	erectile disorder*
trimeprazine (Temaril)	erectile disorder, decreased desire, inhibition of ejaculation*

*Case report(s), package insert, or uncertain frequency; **infrequent side effect; ***frequent side effect; **** very frequent side effect.
NOTE: Medications and the accompanying side effects that have been cited frequently as causing sexual disorders are in bold type.

TABLE 5

Illicit and Abused Drugs Associated with Sexual Disorders

Substance	Sexual Disorder
alcohol	**acute effects: erectile disorder,*** desire disorder,*** delayed orgasm***; chronic effects: erectile disorder, *** desire disorder***
amphetamines	low doses: may increase desire and delay orgasm*; high doses and chronic use: **delayed or no ejaculation,***** erectile disorder,** inhibition of orgasm (men and women)*
amyl nitrite	decrease in arousal and lubrication; erectile disorder; delayed orgasm or ejaculation*
barbiturates	**decreased desire, erectile disorder, inhibited ejaculation****
cocaine	**erectile disorder,*** spontaneous or delayed ejaculation, priapism***
diazepam (Valium)	**decreased desire, delayed ejaculation, retarded or no orgasm in women***
marijuana	**decreased desire, hormonal alteration***
MDMA	**erectile disorder,**** inhibited ejaculation**** and orgasm,****** decreased desire**
methaqualone	erectile disorder, inhibited ejaculation, decreased desire in women*
morphine	decreased desire, erectile disorder, hormonal alteration*
tobacco	erectile disorder**

*Case report(s), package insert, or uncertain frequency; **infrequent side effect; ***frequent side effect; **** very frequent side effect.
Note:Medications and their accompanying side effects that have been cited frequently as causing sexual disorders are in bold type.

aware of the possible effects of these substances and structure their interview accordingly.

GUIDELINES FOR ASSESSMENT OF MEDICATION EFFECTS

The presentation of medication-related disorders is often similar to disorders caused by physiological factors. That is, they are likely to be consistent across time and situations, whereas disorders with psychogenic causes are likely to be situation specific. A woman who lubricates and climaxes during masturbation but not with her partner is not likely suffering the side effects of medication. Similarly, a male patient who reports regular morning erections of good rigidity and good erections during masturbation, but no erections or insufficient erections with a partner, is most likely experiencing a psychological problem.

Medication effects, however, may mimic a psychogenic problem in two ways. First, it is possible for medications to have transient effects on sexual function. For example, antihypertensive medications may cause a disruption of sexual function for a few hours after ingestion. A patient who takes one of these medications in the morning may report poor erections with his partner following ingestion but good erections masturbating at other times of the day and good morning erections before taking medication. This patient can be encouraged to modify the timing of his sexual activities, or an alternative dosing schedule may be tried. Second, medication-induced sexual disorders do not typically develop gradually as organic disorders typically do. For example, a patient who reports sudden onset of erectile disorder with a new partner may be diagnosed with a psychogenic disorder. However, if this patient began taking a new medication between relationships, it is possible that the sudden onset is caused by the medication, not the anxiety inherent in a new relationship.

Temporal factors also play a significant role in identifying the contribution of medication to sexual disorders. If a patient is taking a medication known to cause erectile disorder, and he reports an erectile disorder, it may seem likely that the medication is contributing to the disorder. However, if the erectile disorder predates the initiation of the medication, it is unlikely that the medication caused the disorder. Similarly, if a patient has been taking the medication for many years with no change in dose and reports a sexual disorder of recent onset, the medication is unlikely to be the primary cause.

Changes in medication regimens also should be assessed. Medications or doses are regularly changed in response to changes in patient status, such as poor control of hypertension. These changes can be keys to determining the contribution of the

medication to the reported sexual symptoms. For example, a client may report that she has taken the same medication for 10 years, and the sexual disorder did not develop until 1 year ago. If the onset of the disorder coincided with an increased dosage of this medication, it may still be the primary cause of the disorder.

On the other hand, if a disorder persists over time, even with repeated changes in medication, it is unlikely that the medication is the primary cause. While many medications can cause sexual disorders, it is unlikely that different medications will cause identical problems in the same patient.[51] Therefore, if a sexual dysfunction has remained consistent despite dose or medication changes, it is unlikely that the medication alone is maintaining the dysfunction. As an example, a patient reported that his erectile disorder started shortly after he began taking medication for high blood pressure. Subsequent changes in medication and ultimately discontinuation of pharmacotherapy did not return erectile function. In this case, the patient was not initially aware of the potential sexual dysfunction side effect of the medication, and did not attribute the disorder to the medication. Instead, he attributed the disorder to anxiety about his new relationship. In essence, the medication "created" performance anxiety that was sufficient to maintain the erectile disorder even after the medication was changed. In this case, reassuring the patient that the medication caused the dysfunction contributed greatly to the cure. This example also illustrates the need to evaluate medications taken around the time of the onset of the disorder, even if these are not the medications being taken at the time of the evaluation.

TREATMENT

Treatment for pharmacologically induced sexual disorders must be approached with some caution. Suggesting to a patient that a medication is the cause of a sexual dysfunction may contribute to nonadherence to the medication regimen. In many cases, for example, patients with hypertension and psychoses, control of the disease or symptoms may outweigh the need for restoration of sexual function. In the patient's mind, however, the opposite is often true. If a patient suspects a medication is contributing to a sexual disorder, he or she is likely to stop taking it.[9] Therefore, it is critical that the physician rule out other possible causes before suggesting a pharmacological cause. In addition, it is crucial for the physician to review with the patient the benefits of medication and the risk of abruptly stopping treatment. The patient should be reassured that if the medication is implicated in the disorder, steps will be taken to identify alternative treatment that will effectively treat the medical condition while simultaneously relieving the sexual problem.

Although identifying possible pharmacological

TABLE 6

Nonprescription Medications Associated with Sexual Disorders

Medication	Sexual Disorder
antihistamines	erectile disorder*
cimetidine (Tagamet HB)	deceased desire (men and women),* **erectile disorder,*** ** gynecomastia*
dimenhydrinate (Dramamine, Marmine, Calm-X, etc)	erectile disorder*
diphenhydramine (Benadryl, Genahist, Nordryl, etc)	decreased desire, erectile disorder*
famotidine (Pepcid AC)	erectile disorder**
naproxen (Aleve)	erectile disorder, no ejaculation*
niacin	**decreased desire****
ranitidine (Zantac 75)	decreased desire, erectile disorder*

*Case report(s), package insert, or uncertain frequency; **infrequent side effect; ***frequent side effect; **** very frequent side effect.
NOTE: Medications and their accompanying side effects that have been cited frequently as causing sexual disorders are in bold type.

causes may be straightforward, determining effective alternatives may be difficult. For example, as previously discussed, the majority of hypertensive medications have been reported to contribute to sexual disorders, so alternatives are limited. By using the information included in this paper and sound clinical judgment, clinicians can often find successful and therapeutically effective alternatives. When possible, the physician may choose to stay within the same therapeutic class, thereby minimizing disruption to the medication regimen. In other cases, a change in medication class may be unavoidable or more appropriate. For example, central antiadrenergic agents and most diuretic medications may cause erectile disorder, so switching to another medication within the same class may not alleviate the symptom. In these cases, switching to a medication class less likely to cause a problem with sexual function (eg, an ACE inhibitor) may be simpler, more efficient, and less frustrating for the patient.

Finally, removing the effects of a medication may not restore sexual function. As mentioned previously, changes in sexual function will typically produce significant anxiety, which may maintain a disruption in sexual function even after the primary cause has been removed. In these cases, simple reassurance by the physician may be sufficient to restore confidence and sexual function. If not, referral to a qualified mental health professional is indicated.

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