Sexual dysfunction in older adults

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INTRODUCTION

Clinicians are increasingly likely to encounter older patients seeking help with sexual dysfunction. More individuals are living into late life, a significant proportion of which remain sexually active.

The proportion of older adults that remain sexually active may be increasing. Openness and acceptance about the role of sexuality in late life has expanded. Medication and other treatments have been developed that enable individuals to maintain successful sexual functioning regardless of age.

This topic discusses the presentation, assessment, and management of sexual dysfunction in older adults, defined as individuals 65 years and older. Diagnosis and management of specific sexual disorders are discussed separately.

- (See "Epidemiology and etiologies of male sexual dysfunction".)
- (See "Evaluation of male sexual dysfunction".)
- (See "Treatment of male sexual dysfunction".)
- (See "Overview of sexual dysfunction in females: Epidemiology, risk factors, and evaluation".)
- (See "Overview of sexual dysfunction in females: Management".)
- (See "Female orgasmic disorder: Epidemiology, clinical features, assessment, and diagnosis".)
- (See "Treatment of female orgasmic disorder".)

- (See "Female sexual pain: Evaluation".)
- (See "Female sexual pain: Differential diagnosis".)

SEXUAL FUNCTION IN LATE LIFE

Psychological/physiological stages — The current model of normal sexual function across the lifespan is anchored in five stages of psychological and physiological changes: desire, arousal or excitement, plateau, orgasm, and resolution [1-3].

- **Desire** (or libido) refers to psychological urges, thoughts and fantasies of sexual activity. It is centered in the hypothalamus and surrounding limbic structures and is stimulated by testosterone in both males and females [4].
- **Arousal** is triggered and enhanced by strong desire, in addition to hormonal influences and direct intimate contact, whether social or physical. It is manifested by penile erection in males and vasocongestion of vaginal, clitoral, and breast tissue, along with vaginal lubrication, in females. Physiological arousal in genital tissue is prompted by both increased blood flow and nervous innervation, and further physical sexual activity leads to increases in overall muscle tone, heart rate, and respiration.
- **Plateau** refers to the sensation of impending euphoric sexual release or orgasm.
- **Orgasm** is the physical and emotional peak of sexual satisfaction, manifested by ejaculation in males and rhythmic contractions of the genital musculature in females.
- **Resolution** involves a psychological and physical state of relaxation following orgasm in which genital tissues are generally refractory of further arousal and orgasm.

Age-related changes in sexual function — Normal aging is associated with a general decline in physiological sexual response, and variable declines in sexual activity.

Frequency of sexual activity — There is a general decline in the frequency of sexual activity in males and females after the age of 65, but not as much as might be expected. In surveys, 50 to 80 percent of males and females over 60 continue to be sexually active, usually defined as having sexual intercourse at least once a month [5-9]. Older males tend to be more sexually active than older females, although sexual satisfaction among those active with a partner remains relatively high in males and females. (See "Normal aging".)

Influencing factors

- Physical health appears to be the most influential factor for sexual activity in males [10]. Having one of more health conditions reduces the frequency of sexual activity but not necessarily the level of satisfaction [11].

- The quality of the relationship is the most important determinant in sexual activity in females [10].

- Cognitive impairments such as those seen in Alzheimer disease and other neurocognitive disorders are associated with decreased sexual activity and increased sexual dysfunction [12,13]. In one national survey study of over 3000 adults with dementia, 46 percent of males and 18 percent of females were sexually active, with over three-quarters of them reporting at least one sexual problem [12]. Lack of interest was the most common problem, seen in 40 percent of males and 65 percent of females with dementia [12].

- The level of sexual activity at a younger age and the availability, interest level, and health of a partner are major predictors of both sexual interest and activity in late life [6,10,14].

These factors appear to be similar irrespective of sexual orientation.

Physiological changes in females — For females, the experience of sexuality in late life is fundamentally shaped by the physiological and psychological changes that occur with menopause. This 2- to 10-year decline of ovarian function (termed perimenopause) typically begins in a woman's 40s and culminates in complete cessation of menses by the early 50s. Menopause is associated with physiologic changes including [15]:

- Atrophy of urogenital tissue leading to decreased uterine and vaginal size
- Decreases in vaginal lubrication and vasocongestion
- Decline in the erotic sensitivity of nipple, clitoral, and vulvar tissue during sexual activity

Accompanying changes in sexual function include declines in [16,17]:

- Libido
- Sexual responsiveness
- Comfort level (sometimes resulting in uncomfortable intercourse, referred to as *dyspareunia*)
- Sexual frequency

Declines in testosterone production in premenopausal females may also lead to changes that affect sexual function including [18]:

- Loss of libido

- Decreased clitoral, vulvar, and nipple sensitivity
- Fatigue

Menopause and associated treatment are discussed in greater detail separately. (See "Clinical manifestations and diagnosis of menopause" and "Treatment of menopausal symptoms with hormone therapy" and "Menopausal hot flashes" and "Menopausal hormone therapy: Benefits and risks".)

Physiological changes in males — For males, a mid-life change in physiological function comparable to menopause does not occur. With aging, however, many males can experience important changes in bodily function that are linked to declines in testosterone production [19]. As males age, there are gradual declines in sexual function that have variable impacts on sexual activity. Sexual desire remains relatively stable in most males. Erections are less reliable and durable, and require more stimulation to achieve and sustain. Ejaculation during orgasm involves decreased amounts of seminal fluid, and the refractory period between orgasms can increase by hours to days. With age, the total testosterone level in males drops by an average of 1.6 percent per year. Levels below 8 nmol/L are typically associated with symptoms including loss of libido, erectile dysfunction, loss of bone and muscle mass, loss of strength, fatigue, and even poor concentration and depression. Levels between 8 and 12 nmol/L are often symptomatic, but symptoms that occur with levels above 12 nmol/L are more likely due to other causes. By age 60, 20 percent of males have low testosterone levels, and this rises to 50 percent of males over age 80. [20,21]. Testosterone deficiency is discussed in detail separately.

Psychologic response to age-related changes in males and females — Aging can bring increased emotional maturity and a heightened capacity for intimacy that can enhance sexual relationships. Older couples may have greater privacy and more time for intimacy. Individuals who understand that certain changes in sexual function are normal are less fearful and better able to adapt. As an example, instead of dreading the effects of menopause, a woman may welcome the freedom from worry about contraception and unwanted pregnancy. Instead of focusing solely on sexual intercourse as the goal of sexuality, a man may be able to shift his focus to the pleasurable sensual intimacy of sexual foreplay. Couples who communicate well can adjust sexual practices in order to maintain or even improve upon previous levels of enjoyment [22].

Some individuals will react negatively to age-related changes, viewing them as harbingers of physical decline or sexual dysfunction. For males, declines in erectile function can be viewed as threatening to their sense of masculinity, and lead to excessive worry, anger, or even depression. Some females grieve the loss of potential motherhood at menopause, particularly if they never had children. These reactions may reinforce negative views about late-life sexuality

being inappropriate or dangerous, and may lead to less frequent and less enjoyable sexual relations [22].

Men who have sex with men and females who have sex with females and couples face similar issues to heterosexuals in terms of age-associated changes in sexual function and sexual relationships. Several studies indicate that older individuals who identify as such feel high levels of satisfaction with both their identity and lifestyle and high levels of sexual satisfaction [23,24].

Sexuality in long-term care settings — Compared with older adults living in the community, residents in long-term care settings are significantly less likely to be sexually active, although some residents are still active in most facilities [25-27]. Barriers to sexuality in long-term care include [25]:

- Loss of interest
- Cognitive impairment/dementia
- Poor health
- Sexual dysfunction
- Lack of partners
- Lack of privacy
- Negative attitudes of staff

Older individuals who have same sex intimacy in long-term care face additional challenges since they fear being rejected and neglected [28]. Both staff members and residents tend to have more negative views of same-sex intimacy [29,30].

Long-term care facilities have the responsibility, however, to educate both staff and residents about the residents' rights to privacy and to engage in intimate relationships [27,31]. There are many accommodations that can be provided, such as beauty services, private rooms for conjugal visits, and medical and psychiatric consultation for sexual dysfunction [22].

When there is concern about an resident's capacity to consent to sexual activity, clinicians should determine how well the individual is able to understand the nature of the relationship, including any potential, associated risks, and to what degree they can avoid coercion or exploitation [32]. (See "Evaluation of cognitive impairment and dementia".)

Assessment and management of inappropriate sexual behavior in patients in long-term care is discussed separately. (See "Management of neuropsychiatric symptoms of dementia", section on 'Sexually inappropriate behavior'.)

Sexually transmitted diseases — The risk of sexually transmitted diseases (STDs) is often overlooked among older patients but remains an important clinical issue. In the United States, individuals 65 years and older account for the smallest percentage of STDs, such as chlamydia, gonorrhea, and syphilis, that are reported to the Centers for Disease Control and Prevention (CDC). However, rates have increased across all age groups, and in some locations, greater increases have occurred among older adults compared with younger individuals [33]. As an example, rates of STDs among members older than 60 years in a health network increased by 23 percent over a three-year period compared with an 11 percent increase overall [34]. Furthermore, in 2018, 17 percent of new HIV infections reported to the CDC occurred in individuals 50 years and older [35].

Despite overall low prevalence rates, older people remain at risk for acquiring STDs. Factors potentially increasing risk in this population include:

- Many older people never received the sex education that has routinely been provided to younger individuals in recent decades.
- The higher prevalence of STDs among younger people may lead to a false sense of safety among older couples, leading them to neglect safe-sex practices.
- Barrier contraceptives may have lower rates of use among older adults compared to younger adults, because they are not needed in postmenopausal females to prevent pregnancy. A study of nearly 6000 individuals ages 14 to 94 found that 91 percent of older males and a majority of older females did not use a condom when having sex; some did not use one when they knew their partner had an STD [36].

Sexually transmitted diseases in the broader population are discussed in more detail separately. (See "Approach to the patient with genital ulcers" and "Acute simple cystitis in females" and "Vaginitis in adults: Initial evaluation" and "Pelvic inflammatory disease: Clinical manifestations and diagnosis".)

SEXUAL DYSFUNCTION IN LATE LIFE

Sexual dysfunction in late life is common. Causes are typically multifactorial, involving combinations of factors described below.

Contributing factors

Medical illness — Any medical illness that impairs the blood supply or nervous innervation of genital tissue can potentially serve as a primary cause of sexual dysfunction. Examples of

causative illnesses that are more common in older adults include diabetic neuropathy [37], which can impair sexual arousal, and peripheral vascular disease [38], which can impair genital vasocongestion. Other major medical causes of sexual dysfunction include cancer, stroke, Parkinson disease, and pulmonary disease [39-41].

Secondary sexual dysfunction may result from fatigue, pain, physical disability, or some other effect of a medical illness. As examples, a man with chronic obstructive pulmonary disease may become short of breath during sexual activity, causing him to become less aroused. A woman with a history of cervical cancer who underwent surgery and radiation could have scarring and contractures of her vaginal tissue, resulting in pain during sex and subsequent loss of libido.

Medications — Medications often play a role in precipitating sexual dysfunction, and can affect males and females at any point in the sexual response cycle [42-44]. Some of the most common culprits include antihypertensives (eg, beta-blockers, diuretics), antiandrogens, and many psychotropic medications, particularly antipsychotics and antidepressants [44-46]. Among antidepressants, bupropion and vilazodone are associated with lower rates of sexual dysfunction [47,48]. (See "Sexual dysfunction caused by selective serotonin reuptake inhibitors (SSRIs): Management".)

Comorbid psychiatric illness — Sexual dysfunction in late life is often comorbid with psychiatric illness, particularly mood and anxiety disorders in which loss of libido is a frequent symptom [49,50].

Individuals with schizophrenia and other psychotic disorders may also have problems with sexual function due to medication effects, as well as difficulty with managing sexual relationships. They may experience difficulty relating to others in sexually comfortable or appropriate ways if they suffer from active positive symptoms, such as delusions, hallucinations, and bizarre thought patterns; and/or negative symptoms, including social withdrawal or discomfort in the presence of others, apathy, and blunted emotional affect.

Other psychosocial stressors — Initial episodes of sexual dysfunction in older adults are often precipitated by a major psychosocial stress, such as the loss of a job or loved one, medical crisis or prolonged illness, or hospitalization. Such major stresses may break sexual patterns and lead to uncertainty of how to resume sexual activity. The loss of a partner is particularly devastating, making the idea of sexuality moot in the short-term. Grief or “survivor guilt” can suppress sexual desire and the willingness to seek out a new partner in the long-term.

In the face of an acute illness, such as a recent heart attack or respiratory compromise, older individuals can suffer from performance anxiety if they anticipate pain, injury due to

debilitation, or even death during sex. (See "Sexual activity in patients with cardiovascular disease" and 'Referral' below.)

Some people may feel less sexual because they are embarrassed over changes in their personal appearance (eg, due to a surgical scar or colostomy bag), or are fearful of body odors or incontinence during sex. Chronic illness can also sap a person's energy and enthusiasm for sex.

Sexual disorders in males — Sexual disorders in older males are discussed below. The presentation, evaluation, and treatment of erectile dysfunction in the general adult population are discussed in more detail separately. (See "Epidemiology and etiologies of male sexual dysfunction", section on 'Premature ejaculation' and "Evaluation of male sexual dysfunction" and "Treatment of male sexual dysfunction".)

Erectile disorder — Erectile disorder, previously called impotence, is a disorder of sexual arousal defined by the inability to achieve or sustain an erection that is adequate for sexual function. It is the most common form of sexual dysfunction in older males, affecting 20 to 40 percent of males in their 60s, and 50 to 70 percent of males in their 70s and 80s [51-53]. The presentation, evaluation, and treatment of erectile dysfunction is discussed in more detail separately. (See "Evaluation of male sexual dysfunction" and "Treatment of male sexual dysfunction" and "Epidemiology and etiologies of male sexual dysfunction", section on 'Erectile dysfunction (ED)'.)

Premature ejaculation — The occurrence of persistent or recurrent, uncontrollable, rapid ejaculation that occurs just prior to or shortly after penetration is the most common sexual dysfunction in younger males, reported in 20 to 38 percent of various samples [54,55]. Its prevalence among older adults has not been well studied. In a study of 860 male respondents, reported rates of premature ejaculation were only slightly lower in males ages 65 to 74 compared with males ages 57 to 64 (28.1 versus 29.5 percent) [54].

Sexual disorders in females — The most common forms of sexual dysfunction in older females include female sexual interest/arousal disorder, female orgasmic disorder, and genito-pelvic pain/penetration disorder [54,56], discussed below. The presentation, evaluation, and treatment of female sexual disorders in the general adult population are discussed in more detail separately. (See "Overview of sexual dysfunction in females: Epidemiology, risk factors, and evaluation" and "Overview of sexual dysfunction in females: Management" and "Female sexual pain: Evaluation" and "Female sexual pain: Differential diagnosis".)

Female sexual interest/arousal disorder — Female sexual interest/arousal disorder is defined by absent/reduced interest or thoughts/fantasies in sexual activity, or reduced/no initiation of sexual activity, unreceptiveness to a partner's initiatives, or absent/reduced sexual

excitement or pleasure during sexuality activity. It is likely the most common sexual disorder in older females, mediated in part by declines in testosterone levels and changes in sexual function following menopause [49]. Evaluation and treatment of this disorder are discussed in detail separately. (See "Overview of sexual dysfunction in females: Epidemiology, risk factors, and evaluation" and "Overview of sexual dysfunction in females: Management" and "Female orgasmic disorder: Epidemiology, clinical features, assessment, and diagnosis".)

The percentage of females with low sexual desire jumps from 10 percent of females under 50 to nearly 50 percent of females in their late 60s and 70s [51]. A study found that 43 percent of females ages 57 to 85 years reported low desire, 39 percent had difficulty with lubrication, and 34 percent had anorgasmia [54].

Loss of libido in older females frequently involves psychological factors, including poor body-image or self-image due to age-associated losses of physical beauty and strength, and internalized negative stereotypes of sexuality being inappropriate for older females. For many older females who are widowed, sex ceases to be a significant part of their life, although this does not necessarily indicate that they have a sexual dysfunction.

Female orgasmic disorder — Female orgasmic disorder is defined by a marked delay in, infrequency of, or absence of orgasms, or markedly reduced intensity of orgasmic sensations in almost all/all sexual encounters. The disorder is typically comorbid with low desire (above) and associated with many of the same factors. Evaluation and treatment of female orgasmic disorder are discussed in detail separately. (See "Female orgasmic disorder: Epidemiology, clinical features, assessment, and diagnosis" and "Overview of sexual dysfunction in females: Epidemiology, risk factors, and evaluation".)

Genito-pelvic pain/penetration disorder — Genito-pelvic pain/penetration disorder encompasses what were previously termed dyspareunia and vaginismus, and are characterized by persistent difficulties with vaginal penetration or marked vulvovaginal or pelvic pain during intercourse, and/or marked fear, anxiety or tightening of the pelvic floor muscles in anticipation of or during vaginal penetration. Genito-pelvic pain is more common during and after menopause because vulvovaginal tissue becomes atrophied and less engorged and lubricated during sexual arousal [57]. Pain during intercourse is also associated with medical conditions that affect the genital region (eg, vulvitis, vulvodynia, and vulvar vestibulitis) or pelvic organs [43]. As an example, scarring or atrophy due to surgery or radiation for gynecologic malignancies can lead to pain during intercourse.

The evaluation and treatment of genito-pelvic pain/penetration disorder is discussed in detail separately. (See "Female sexual pain: Evaluation" and "Female sexual pain: Differential

diagnosis".)

ASSESSMENT

The assessment of sexual dysfunction in an older individual depends, first and foremost, on an educated clinician who is comfortable and knowledgeable about late-life sexuality. If the clinician is embarrassed or uncomfortable asking questions about sexual function, it is unlikely that adequate assessment will occur. The clinician must be able to ask direct questions using common language, and to listen carefully and patiently, keeping in mind that older people will have many of the same sexual concerns as younger people [58]. An indispensable source of information about a sexual problem is the partner. The partner's presence during an interview will help facilitate open communication with the affected partner. (See "Overview of sexual dysfunction in females: Epidemiology, risk factors, and evaluation", section on 'Diagnostic evaluation' and "Female orgasmic disorder: Epidemiology, clinical features, assessment, and diagnosis", section on 'Assessment' and "Evaluation of male sexual dysfunction" and "Female sexual pain: Evaluation", section on 'Diagnostic evaluation'.)

One way to organize the assessment process and increase the comfort level of both the clinician and patient is to use a formal interview, also termed a sexual status examination. The goal of the sexual status examination is to identify the presence and degree of problematic changes in sexual function across the stages of the sexual response cycle. Inherent to this examination is a sex history that inquires about an individual's current sexual functioning, prior sexual experiences, attitudes towards sexuality, and the state of any current relationship.

Clinicians can increase their own comfort level with discussing these topics with patients by role-playing an interview alone or with a colleague, with a focus on using sexual terms in a comfortable and matter-of-fact way. Patients are often more relaxed during an interview when they see that the clinician is skilled and comfortable with the questions. Couching sexual issues in medical terms can be a way of facilitating the interview, as the assessment process should include:

- A complete medical and psychiatric history
- A physical examination with a focus on urologic or gynecologic function done by a specialist
- Select laboratory studies, including testosterone and prolactin levels if a metabolic or hormonal etiology is suspected

- A mental status examination to identify symptoms of anxiety or depression that may be blocking desire and performance, or thoughts (eg, angry, obsessive, psychotic) that are interfering with sexual arousal

In addition, it is critical to ask about the quality of an individual's current relationships, since marital or couples' stress are important factors associated with sexual dysfunction [59].

MANAGEMENT

Overview — At the outset of treatment for sexual dysfunction in late life it is important for the clinician to provide reassurance and education. Reassurance of the patient depends on an enlightened clinician who understands that sexuality in general and sexual intercourse in particular remain important goals for many older patients. The clinician should listen empathically, and then emphasize in clear and nontechnical language the normality of sexuality in late life and the possibility of effective treatment for sexual problems. Many patients have internalized negative perspectives on late-life sexuality. The act of providing reassurance builds trust between patient and clinician, and this relationship will lay the basis for the patient feeling comfortable with being open about emotional reactions to the problem, and seeking follow-up treatment. Many treatments fail at this point; not because the treatment will not work, but because the patient and clinician never establish a solid working relationship, or because the patient is overcome with pessimism or doubt and refuses to engage in treatment.

General treatment principles — Specific treatments for disorders in sexual functioning in older adults do not differ significantly from the modalities used in younger adults; these treatments are discussed in detail separately. (See "Treatment of male sexual dysfunction" and "Overview of sexual dysfunction in females: Management".)

In general, however, there are a number of important considerations for the older couple:

- **Chronic medical illness** – If one or both partners suffer from chronic medical illness or disability, sexual practices may need to be adapted to account for physical limitations, fatigue, loss of muscle strength, and pain [60]. As an example, a clinician who treats the condition in question should be consulted on ways to minimize pain or discomfort and maximize function, perhaps by taking analgesics or other treatments (eg, specific muscle stretches, nasal oxygen, inhalers) prior to sex.

- **Physical exertion or stress** – Sexual positions with the couple lying side-by-side, or rear entry braced by pillows, might minimize physical exertion or stress on certain parts of the body.

- **Dry or atrophied genital tissue** – Over-the-counter lubricants should be used liberally to counteract potential discomfort from dry or atrophied genital tissue.

- **Sufficient arousal** – It is important to allowing extra time for foreplay since with age it might take longer to provide sufficient arousal to achieve orgasm.

Specific interventions

Education — Educating patients about both normal and pathologic changes in sexual function in late life can reduce excessive fear and increase acceptance of these changes [56,58]. As examples, in each of the following cases, the patient can be reassured that their sexual changes may have an identifiable, possibly treatable cause:

- A man may misinterpret normal decline in erectile function as a sexual problem. A woman may misinterpret her experience of vaginal dryness to mean that she does not want to have sex. Such overreactions to normal changes can affect sexuality even more than the underlying physical changes, leading some individuals to engage in less frequent or more limited sexual activity.

- An older man with diabetes or atherosclerotic disease may have a more pronounced decline in erectile function or even erectile dysfunction, given possible compromise of penile blood flow.

- An older woman with a history of an arthritic hip might experience limited pelvic movement or even pain during sex, in addition to potential discomfort due to decreased vaginal lubrication.

- A depressed patient may report significant reductions in libido.

The clinician should review with the patient possible causes, the nature and likelihood of benefits and risks of treatment, and where appropriate discuss ways in which the patient's physical or mental state may be influencing these changes.

Education should focus on improving the quality of an individual's sexual relationship with their partner. Sometimes the clinician can provide a forum for the couple to discuss basic difficulties during sexual activity, and strategize on ways to improve them. The clinician should emphasize to the couple that sex can be more than just intercourse, and that physically pleasing each other can occur through massage and masturbation, and does not always have to be mutual. Couples often have to adapt sexual techniques and refocus more time on foreplay in order to preserve previous levels of sexual function and enjoyment.

Education about sexuality, sexually transmitted diseases, and safe sex practices should not be neglected in clinical care for older adults. Many are sexually active, but may be at risk due to knowledge deficits. Many older adults completed their schooling prior to the introduction of routine sexual education. (See 'Sexually transmitted diseases' above and "Treatment of *Chlamydia trachomatis* infection" and "Urethritis in adult males" and "Treatment of uncomplicated gonorrhea (*Neisseria gonorrhoeae* infection) in adults and adolescents" and "Pelvic inflammatory disease: Treatment in adults and adolescents" and "*Mycoplasma genitalium* infection" and "Treatment of genital herpes simplex virus infection" and "Syphilis: Screening and diagnostic testing".)

Psychotherapy for sexual dysfunction — Sex therapy is a psychotherapeutic process that utilizes supportive, insight-oriented, and cognitive-behavioral techniques to treat sexual dysfunction [2,61,62].

The basic approach for an older individual or couple will not differ substantively from younger individuals, with a few caveats.

- Older couples may have more longstanding relationship discord which must be addressed before sex therapy can begin.
- Age-related changes in physical or mental health, such as the presence of cognitive impairment in one partner, will require specific discussions about their impact on the sexual relationship.
- Sensate focus exercises, designed to couple sensuous physical intimacy with relaxation, will have to be adapted for any physical limitations in one or both partners.

When encountering significant resistance to treatment, remain hopeful. It is quite common for the older couple in sex therapy to rediscover that they retain a considerable amount of sexual energy and ability, and this can lead to a newfound appreciation for their relationship and the life-affirming role of sexual intimacy.

Phosphodiesterase 5 inhibitors — Phosphodiesterase (PDE) 5 inhibitors are used in the treatment of erectile dysfunction. Clinical trials have shown them to be efficacious in older males, although with less responsiveness compared to younger males [63,64]. For some older males without optimal response to on-demand use, daily low-dose administration may be more effective [65].

Side effects seen in older males include headache, skin flushing, dizziness, gastrointestinal discomfort, back pain and blurred vision. The combination of PDE and nitrates (eg, sublingual

nitroglycerin, isosorbide) can lead to hypotension and should be avoided in older males with a history of angina. PDE 5 inhibitors should be used with caution in males with abnormal penile shape, a history of orthostatic hypotension, severe renal or hepatic disease, concomitant use of certain antiviral and antifungal medications, and diseases that increase the risk of priapism, such as multiple myeloma and leukemia.

Any changes in visual acuity while taking a PDE 5 inhibitor require immediate assessment. Case reports have described the rare occurrence with PDE 5 inhibitors of nonarteritic anterior ischemic optic neuropathy (NOIAN), characterized by the rapid onset of visual loss [66].

The benefits, risks, and contraindications of phosphodiesterase 5 inhibitors in erectile dysfunction in the general adult population are discussed separately. (See "Treatment of male sexual dysfunction", section on 'Initial therapy: PDE5 inhibitors'.)

Referral — Consultation or referral to specialists may be helpful in several circumstances:

- **General medical condition –** We often refer to a urologist or gynecologist to rule out or manage a medical condition or treatment that may contribute to sexual dysfunction; advise the patient on sexual activity in the presence of a medical condition; and to prescribe medications for sexual dysfunction in older patients with a complicating medical condition. (See 'Medications' above and 'Medical illness' above and "Sexual activity in patients with cardiovascular disease".)

- **Marital discord** – We often refer to a couples or marital therapist for evaluation and treatment of relationship discord. (See 'Other psychosocial stressors' above.)

- **Mood disorder, anxiety, and others** – We often refer to a psychiatrist for evaluation and treatment of anxiety, depression, psychotropic-induced side effects, or other psychiatric conditions that appear to be interfering with sexual function. (See 'Comorbid psychiatric illness' above.)

SUMMARY

- **Physiologic changes** – In females, the experience of sexuality in late life is fundamentally shaped by the physiological and psychological changes that occur with menopause. Accompanying changes in sexual function include declines in libido, sexual responsiveness, comfort level, and sexual frequency. Declines in testosterone production in premenopausal females may also lead to loss of libido, reduced tactile sensitivity, and fatigue. (See 'Physiological changes in females' above.)

Many males experience declines in testosterone production along with associated reductions in sexual desire, erection, and frequency of ejaculation with aging. (See 'Physiological changes in males' above.)

- **Contributing factors** – The majority of males and females over 60 have reported in surveys that they have sexual intercourse at least once a month. The most influential predictor of sexual activity appears to be physical health in older males, and the quality of the relationship in older females. (See 'Age-related changes in sexual function' above.)

- **Sexual dysfunction** – Sexual dysfunction in late life is common. Causes are typically multifactorial, involving combinations of factors including physical effects of medical illness, medications, comorbid psychiatric disorders, and psychosocial stressors including losses of partners and other close relationships. (See 'Sexual dysfunction in late life' above.)

- **Sexual disorders** – Sexual disorders seen in older males include erectile disorder and delayed ejaculation. Disorders seen in older woman include female sexual interest/arousal disorder, female orgasmic disorder, and genito-pelvic pain/penetration disorder. (See 'Sexual disorders in males' above and 'Sexual disorders in females' above.)

- **Assessment** – A sexual status examination can identify the presence and degree of problematic changes in sexual function across stages of the sexual response cycle. The examination inquires about an individual's current sexual functioning, prior sexual experiences, attitudes towards sexuality, and the state of any current relationship. (See 'Assessment' above.)

- **Management** – Management of sexual dysfunction in older adults can include reassurance, education, sex therapy, and/or medication. Patients should be educated about processes associated with normal aging and about interventions available for treatable causes of dysfunction. Interventions for specific disorders do not differ significantly from the modalities used in younger adults, but may need to take into account factors (eg, pain/discomfort, underlying relationship issues, chronic medical conditions) specific to the older patient. (See 'Management' above.)

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