

Erectile dysfunction

Erectile dysfunction (ED) is defined as the inability to achieve and maintain an erection that is sufficient for satisfactory sexual intercourse. It can have a significant impact on the quality of life of both patients and their partners.

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The single most influential factor for the development of erectile dysfunction (ED) is increasing age.¹ The prevalence of complete ED increases from 5% for men aged 40 years to 15% for men aged 70 years.¹

In the Massachusetts Male Aging Study, a community based survey of men between 40 and 70 years of age, 52% of respondents reported some degree of ED: 17% mild, 25% moderate, and 10% complete. Although the prevalence of mild ED remained constant (17%) between the age of 40 and 70 years, there was a doubling in the number of men reporting moderate ED (from 17% to 34%) and a tripling in the number of men reporting complete ED (from 5% to 15%).² Although more than 70% of men over the age of 65 years report that they are sexually active, up to 40% report dissatisfaction with their sexual function.³

By 70 years of age, two thirds of men have ED. ED in old age can be a result of physiologic changes of ageing, cultural, social or psychological factors, medical comorbidities including

physical limitations, chronic diseases, and medications. Often, however, a combination of factors is present.

Physical disorders

Ageing is associated with an increase in the number of chronic illnesses such as hypertension, diabetes mellitus, chronic obstructive pulmonary disease, peripheral vascular disease, renal failure, cerebrovascular accident, malignancy, and prostate problems. These problems, the medications used for these conditions and the likelihood of surgical procedures as a management option for them will have distressing physical and psychological sequelae and may all contribute to ED. In addition, there may be damage to the vascular integrity of the genitalia and functional limitation of the pulmonary and cardiovascular systems.² The effects of prostatectomy on sexual function have been well studied. According to one study,⁴ prostatectomy is associated with

major erectile failures in 12% and absent ejaculation in 24% of cases. The sexual dysfunction found in patients with prostate cancer is largely due to the effects of treatment, with radical prostatectomy carrying the highest risk.⁵ Finasteride (Proscar), the 5-alpha reductase inhibitor used to reverse benign prostatic enlargement, and reduce the risk of surgery in such patients, is associated with loss of libido, erectile failure and reduced volume of ejaculate in 5–6% of men.⁶

Psychiatric disorders

The most common psychiatric disorders affecting older people are dementia, depression, delusional disorders and delirium. Sexual behaviour may change significantly in depression² and dementia⁷ resulting in profound ED as well as severe distress to the patient's partner. Sexual problems may be further compounded in this group of patients by the use of psychoactive agents, which in isolation may also result in ED.

Box 1: New classification of ED recommended by the International Society of Sexual Medicine

Psychogenic

1. Generalised type

- A. Generalised unresponsiveness
 - i. Primary lack of sexual arousability
 - ii. Ageing-related decline in sexual arousability
- B. Generalised inhibition
 - i. Chronic disorder of sexual intimacy

2. Situational type

- A. Partner related
 - i. Lack of arousability in specific relationship
 - ii. Lack of arousability due to sexual object preference
 - iii. High central inhibition due to partner conflict or threat
- B. Performance related
 - i. Associated with other sexual dysfunction/s (eg. rapid ejaculation)
 - ii. Situational performance anxiety (eg. fear of failure)
- C. Psychological distress or adjustment related
 - i. Associated with negative mood state (eg. depression) or major life stress (eg. death of partner)

Organic

- 1. Neurogenic
- 2. Hormonal
- 3. Arterial
- 4. Cavernosal (venogenic)
- 5. Drug induced

Mixed organic/psychogenic (most common type)

Pharmacological agents

Antidepressant drugs such as selective serotonin reuptake inhibitors (SSRIs) and tricyclics are implicated in a variety of sexual problems affecting libido, arousal and ejaculation whereas antipsychotic drugs have a predominantly depressant effect on sexual function resulting in

ED. Therefore, it is important for clinicians to enquire carefully as to what specific type of sexual function is affected. Nearly half of patients treated with SSRIs may develop sexual dysfunction, mainly related to problems with ejaculation and orgasm or erectile failure. Once an antidepressant-induced sexual

dysfunction has been established, appropriate dose alteration to a different antidepressant that are least likely to affect sexuality (eg. mirtazapine, nefazodone and reboxetine (Edronax)) is needed. Other medications that may cause ED include antihypertensives, H₂-blockers, thiazide diuretics, metoclopramide, cimetidine, digoxin and anticonvulsants.

Occasionally, patients treated with SSRIs may report increases in sexual desire. The drugs implicated here are trazodone, bupropion, venlafaxine (Efexor), paroxetine and fluoxetine which some times may result in priapism (especially trazodone).

In response to psychological and physical stimuli, an erection is initiated by the parasympathetic division of the autonomous nervous system and is accomplished by engorgement of corpora cavernosa with venous blood, resulting in hardening and enlargement of the penis. This haemodynamic event results primarily from relaxation of smooth muscles of the arterial vasculature, distension of the corpora cavernosa and the surrounding sinuses, and compression of the venules influenced by the neurotransmitter nitric oxide released by the endothelial lining. Nitric oxide eventually increases the tissue concentration of a potent smooth muscle relaxant cyclic guanosine monophosphate (cGMP), which is ultimately neutralised by the enzyme phosphodiesterase-5 (PDE-5).

Assessment of a sexual dysfunction requires a careful

Box 2: Physiological changes in old age

- Atrophy of sexual organs
- Delay in attaining erection and maintaining a full penile erection
- Poor quality erection and orgasm
- Reduced desire with decreased hormone levels.

history from the patient and partner. Patient education regarding the physiological changes associated with ageing is an important part of the management of sexual dysfunctions in elderly people.

The range of treatments available comprises psychosexual counselling, hormonal therapy, drug treatment, mechanical devices and vascular surgery.

Psychosexual counselling

This is an important aspect of any management plan since sexual dysfunctions, whatever the underlying cause, commonly have a psychological overlay. It is, therefore, recommended that pharmacological treatment be combined with counselling.

Pharmacological management

Drug treatment for ED includes:

- Hormones
- Phosphodiesterase Type V Inhibitors (PDE-5)
- Apomorphine sublingual

tablets

- Intracavernosal injection of vasoactive drugs
- Intraurethral insertion of prostaglandin (MUSE)
- Use of vasoactive cream.

Hormonal treatment

This is helpful in patients with significantly low levels of testosterone which is uncommon in elderly people. Testosterone replacement in the elderly should be used with caution as it can potentially aggravate prostate pathology including malignancy. There is also increased risk of thromboembolic complications.

Oral agents

PDE-5 inhibitors have had a tremendous impact on the management of ED and have rapidly become the first line of treatment both in non-organic and in organic ED secondary to diabetes mellitus, hypertension and neurological disorders, since their introduction in 1998. The drugs inhibit the enzyme PDE-5 in the cavernous tissue of the penis resulting in sustained levels of cGMP, which help to increase the arterial blood flow leading to smooth muscle relaxation, vasodilation and penile erection.

Clinical experience suggests that men with psychogenic ED respond well to 50mg sildenafil (Viagra), whereas 100mg is more effective in organic impotence. PDE-5 inhibitors are safe and have relatively minor side effects, the main ones being headaches, flushing, dyspepsia, nasal congestion and abnormal vision. They are contraindicated in patients taking nitrates because of the danger of

provoking severe hypotension.

Premature ejaculation has been mostly treated by psychological methods such as the squeeze technique or the stop-start method. This is the first line conservative method with a success rate of about 50–60% without the side effects of medications.⁸ A study by Strassberg et al⁹ suggests that clomipramine (Anafranil) 25mg taken as needed as little as four hours prior to sexual activity is of value in treating premature ejaculation.

SSRIs are used to treat psychiatric disorders have shown to delay ejaculation. They are widely used “off-label” for premature ejaculation. Commonly used SSRIs include citalopram, fluoxetine, fluvoxamine, paroxetine and sertraline, all of which have a similar pharmacological mechanism of action. Paroxetine was found to be superior to other SSRIs. Common side effects of SSRIs include drowsiness, nausea, vomiting, dry mouth, diarrhoea, fatigue. Decreased libido, anorgasmia, and ED have been also reported.¹⁰

Apomorphine sublingual

Apomorphine is a centrally acting drug with rapid absorption yielding erections within 20 minutes. It offers a safer oral treatment than PDE-5 inhibitors for men with ED who are taking nitrite therapy.^{5,6} Nausea, dizziness, somnolence, and headache were the most common adverse effects. A drug safety alert has been issued on pathological gambling and increased libido possibly associated with apomorphine.

Box 3: Management options

- Basic education and advice
- Psychosexual counselling
- Drug treatment
- Mechanical devices
- Vascular surgery

Intraurethral drugs

Prostaglandin E1 is used as an intraurethral pellet in a preparation known as MUSE (Medicated Urethral System for Erection), with success rates of approximately 50%.⁹ Hypotension and syncope have been noted in 1–6% of patients, thus requiring an initial trial dose administration within the clinic setting. Some female partners (10%) also report vaginal discomfort.

Intracavernosal injection therapy

The most commonly used drug is now alprostadil or prostaglandin E1. The technique for self administration should be taught in the clinic and performed by the patient prior to home use. Occasional side effects include penile pain, bruising, hypotension, flushing, fibrosis and priapism. Intracavernosal prostaglandin offers an initial success rate of 95% but there is a drop-out rate of approximately 25–60%.

Mechanical devices

The vacuum constriction devices were the more popular form of treatment for erectile failure in older men with stable relationship before the introduction of PDE-5 inhibitors

medication. The success rate, in terms of patient satisfaction is in the region of 50–70%.

There are conflicting data about the effectiveness of these devices when used over an extended period of time. Side effects include penile pain, numbness and delayed ejaculation.

Penile prosthesis such as inflatable prostheses are used when conservative treatments fail. Satisfaction rates for both patient and partner are in excess of 80%. The two main complications are mechanical failure and infection.

Conclusion

Elderly people rarely seek professional help for sexual dysfunction. With increasing life span and the number of healthier older people, they will have increasing expectations regarding their sexuality. Clinicians should be aware of such problems, be ready to educate and advise older people and refer to the appropriate specialists as and when necessary.

Conflict of interest: none declared

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