PATIENT EDUCATION

Erectile Dysfunction

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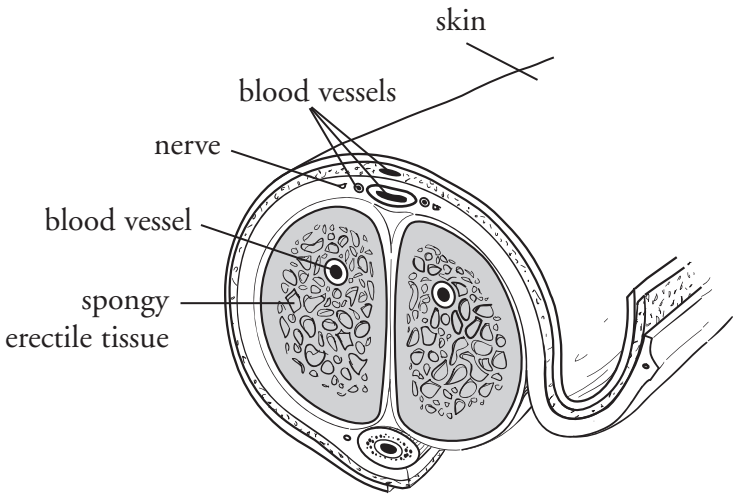
Introduction

Erectile dysfunction (ED), often referred to as impotence, is the consistent inability to obtain or keep an erection for satisfactory sexual relations. Many medical conditions and treatments can cause ED. This booklet presents an overview of ED, its causes, and treatments.

The penis is an organ that has spongy erectile tissue composed of muscle along both sides. (See Figure 1.) An erection is related primarily to blood flow, regulated by the relaxation and contraction of blood vessels in the penis. Penile erections are triggered by direct stimulation of the genitalia or through stimuli from the brain (e.g., fantasy, smell, etc.). Upon stimulation, chemicals are released in the brain that cause signals to travel down the spinal cord and outward through nerves in the penis. These nerves release another chemical that causes the blood vessel walls to relax and blood rushes into the erectile tissue, causing an erection.



Causes of Erectile Dysfunction

Erectile problems can occur for many reasons. Very often the problem will have more than one cause. These may be psychological, physical, or a combination of both. Distinguishing between psychological and physical causes is helpful because treatments may differ, depending on the cause.

Psychological causes of erectile dysfunction include stress and anxiety due to marital, financial, or other personal problems. Anxiety or fear can prevent the brain signals from reaching the level required to cause an erection. Depression is also a major cause of ED.

Physical conditions can often block the blood vessels or cause scarring of the spongy erectile tissue and prevent proper blood flow or trapping of blood, which limits the erection. Certain medical conditions, medical treatments, and surgeries can also have an effect on the nerves that are involved with erections. Some diseases associated with erectile dysfunction, such as diabetes, affect both the blood vessels and the nerves. Listed are some of the common medical conditions associated with ED.

- Diabetes
- High blood pressure
- High cholesterol
- Coronary artery disease
- Heart attack
- Stroke
- Parkinson's disease
- Multiple sclerosis
- A bulging lumbar disc
- Medications such as certain blood pressure pills, cold medications, hormones, antidepressants, and tranquilizers
- Illegal drugs such as cocaine and heroin
- Thyroid problems
- A low testosterone level
- Major surgery of the prostate, bladder, or rectum
- Radiation therapy to the abdomen or pelvis

Cigarette smoking and alcohol consumption, while not medical conditions like those above, are also associated with ED.

Evaluation of Erectile Dysfunction

The evaluation of the male with erectile dysfunction consists of three parts: a detailed history, physical examination, and possibly testing (e.g., a blood test or ultrasound).

History

You will be asked questions about your sexual partner, the length of the relationship, and its dynamics. The next part of the history includes questions regarding medical matters and past surgeries. Specific attention is placed on vascular, neurological, endocrinological, surgical, and psychological factors that may represent risk factors for sexual dysfunction.

A brief assessment of the patient's psychological status is important also to determine if ED may be caused by anxiety or stress. Since medication can contribute to ED, inform your doctor of all the medications that you are taking. It is also important to tell your doctor if you are using any recreational (illicit) drugs. Your doctor will also ask questions regarding the onset, duration, and degree of ED. Other questions may include: how long erections last, if morning or nocturnal erections occur, date of the last sexual intercourse, libido (sex drive), ejaculatory function, orgasm function, and whether the erectile dysfunction occurs only under certain situations, i.e., depending where you are and who you are with.

Physical Exam

During the physical examination, the doctor will look for any factors that may contribute to ED. It includes a neurological assessment, feeling the abdominal area, and an examination of the external genitalia.

Testing

Your doctor may order other exams such as laboratory tests (e.g., urine, blood, and hormone), ultrasonography, or both to obtain more information regarding the possible cause of ED, but most men do not need further testing.

Treatment

After the doctor determines the cause of ED, the appropriate treatment will be recommended. This may include medication, a vacuum device, or a penile implant.

Medication

Oral

Usually the first medication that is used is Viagra® (sildenafil) or one of the new drugs with similar actions. Your doctor or nurse will go over how and when to take the medication by mouth as described on the medication fact card you will receive. Viagra works by increasing pro-erection chemicals within the erectile tissue. This promotes the development and maintenance of an erection. Viagra has been shown to be effective across a wide spectrum of medical conditions that cause ED, although it is least effective for certain patients who have diabetes. It is also less effective early after a patient has had a radical prostatectomy. The percent of men for whom the drug is effective varies depending on the cause of the ED. Ask your doctor to give you an estimate of its chance for success in your situation. Headache, flushing, visual disturbances, and stomach upset are the most common side effects of Viagra. Men who have a history of certain cardiac (heart) problems or who take medications containing nitrates should **avoid** using Viagra. Your doctor will discuss this with you to determine if Viagra may be appropriate for you.

Intraurethral

Another type of medication is given directly into the penis as a small pellet, e.g., alprostadil (MUSE®) urethral suppository, the size of a grain of rice; it is inserted into the urethra (urinary tube). The intraurethral pellet avoids the need to inject a drug into the penis and can be less intimidating. However, the process to insert the pellet requires proper training to learn how to give the medication. Some men experience penile pain with the administration of the drug, which may warrant using other medications. The rate of producing an erection sustainable for sexual intercourse is 30-40% with the intraurethral pellet. Discuss this treatment option with your nurse or doctor to see if you are a candidate for this type of therapy.

Intracavernosal (Penile) Injections

Even with the availability of Viagra and intraurethral pellets, penile injections are still the most effective form of drug treatment for ED. The rate of success with injection therapy is 75-95%. It is preferable to use a combination of agents instead of a single agent to reduce side effects and maximize effectiveness. The advantage of penile injections compared to oral medications is that these medications induce erection even in the presence of only minimal stimulation. The disadvantages include a more complex route of administration, potential for bleeding, bruising, and penile fibrosis (scarring of erectile tissue), and a higher incidence of priapism (prolonged erection). However, the incidence of side effects is very low. A small amount of medication is instilled into the erectile tissue on the side of the penis

with a very small needle. The onset of an erection is generally within 5-10 minutes and on average lasts approximately 20-30 minutes. If you choose to use this therapy, you will have two to three office visits to learn how to give the injection and how to find the appropriate dosage.

Vacuum Device

The vacuum device is a clear plastic cylinder with a pump at the end. The vacuum is placed over the penis and activated by pressing the "on" button. Once the device is activated, negative pressure is produced in the cylinder, which draws blood into the penis. Once the penis is rigid enough for sexual activity, a constricting band is placed at the base of the penis to keep the blood in the penis during sexual activity. The band should be on for only 30 minutes or less. This device is easy to use, but a significant number of patients find it unacceptable. After the application of a constriction band, the penis has a cool temperature, which causes a large amount of swelling of the veins on the surface. These factors make the vacuum change the appearance of the penis.

The average man using such a device will typically take 10-20 minutes to obtain a significant erection of penetration rigidity. The time combined with the mechanical nature of the treatment makes this option cumbersome for some men and they may have some difficulty integrating it into sexual relations. Despite the apparent drawbacks to the use of vacuum devices, there are patients who find it easy to use, and it has allowed many couples to successfully resume sexual relations.

Penile Implant

Surgery for a penile prosthesis has undergone significant changes since its introduction and currently represents a safe and effective means to treat men with ED. Patients who try, but fail to achieve satisfactory results with the pills, suppositories, vacuum devices, or injections may choose penile prosthesis surgery as an option. The ideal penile prosthesis will permit a man to control when he has an erection and also penile flaccidity (softness). To insert a penile prosthesis, the man must have an overnight stay at the hospital. Side effects after surgery to insert the prosthesis are swelling or soreness in the scrotal area. Unless there are complications, the implant can be left in place permanently.

The implant is activated through a small pump that is placed in the scrotal sack. Advantages of this treatment are that it allows for spontaneity and provides good penile rigidity for sexual activity. Disadvantages include the risk of infection, erosion of the implant through tissue, failure of the device to work, and autoinflation (inflating or activating by itself), all of which are uncommon.

Penile Rehabilitation

Penile rehabilitation is the term given to the early treatment of men with erection-inducing drugs following radical pelvic surgery (e.g., prostatectomy, bladder removal, or rectal surgery) in an effort to protect erectile tissue from degeneration. After these surgeries most men suffer at least temporary erectile difficulties. It is being increasingly appreciated that failure to obtain erections with some regularity may result in degeneration of the erectile tissue that may prevent the return of natural erections.

Patients can be seen within one month of surgery and medication can be prescribed to help a man obtain erections regularly. While many men may respond to oral treatment (e.g., Viagra), some may need to consider the intraurethral pellet (e.g., MUSE), or penile injections. Early evidence suggests that using penile rehabilitation may increase the ability of men to regain natural erections. However, even using this rehabilitation therapy, most men do not have a return of erections for 12-24 months after surgery.

Conclusion

Erectile dysfunction is a manageable condition that can result from different medical problems and treatments. The type of treatment that you choose is a very personal and an individual decision. Use this booklet as a guide to assist you in deciding what type of treatment is appropriate for you and your partner. If you have concerns or questions, consult with your doctor or nurse.