UNIT NO. 3

MANAGING ERECTILE DYSFUNCTION

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PREVIEW

This unit concerns the management of Erectile Dysfunction (ED) and covers the various treatment options for managing ED.

OBJECTIVES

At the end of this unit, the course participants should be able to describe the following with respect to managing Erectile Dysfunction:

1. The role and responsibility of the attending doctor in managing ED
2. Oral Therapy
3. Topical treatment
4. Intraurethral therapy
5. Injectables
6. Vacuum Device
7. Surgery.

CONTENTS

Introduction

The purpose of this unit is best summed up by the following description of the role of the attending professional (doctor) as quoted from the United Kingdom Management Guidelines for Erectile Dysfunction[1]:

"The role of the professional is to inform the patient and help him to make a reasoned choice."

The Responsibility of the attending doctor in managing ED

The attending doctor has a responsibility to his patient and this includes:

The professional discussing treatment options with the patient should ensure that:

1. Unbiased information is offered on all suitable treatment options, their merits and known significant risks, in a form that the patient (and partner) can assimilate and from which it is sufficient for them to evaluate the options
2. The final choice of treatment is tailored to the needs and preferences of the patient
3. Agreed treatment goals are established at the start of treatment
4. Appropriate information is given on management of the chosen treatment, including advice on what to do and who to contact in case of problems and complications. (Grade C, Level IV).

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Treatment options

1. Oral Therapy

This is perhaps the most convenient form of treatment. Patient instruction is brief and simple. Compliance and continuation with treatment is, therefore, usually good.

The variety of oral therapy for erectile dysfunction has proliferated in recent years. Prior to sildenafil, oral therapy consisted of Yohimbine and traditional medicines and aphrodisiacs. Since then, the newer classes of drugs namely the phosphodiesterase 5 (PDE5) inhibitors, as typified by sildenafil, has become the popular choice.

1.1 Yohimbine

This is a selective peripheral alpha-2 adrenoreceptor blocker with vasodilatory effect. Efficacy rate is about 25%. As this does not exceed the placebo effect, it is currently not one of the recommended treatments for the standard patient[2].

1.2 Traditional medicines

These may be of plant or animal origins. As there is a wide variety and limited clinical studies on most of these compounds, their true efficacy rate is unknown and probably variable according to preparation.

1.3 Phosphodiesterase (PDE-5) Inhibitors

These act by inhibiting the enzyme phosphodiesterase, which breaks down cGMP. This action allows the buildup of cGMP resulting in smooth muscle relaxation and vasodilatation. Vascular flow to the corpora cavernosa is improved, resulting in a better erection.

1.3.1 Sildenafil acetate (Viagra)

Sildenafil is the forerunner of the PDE5 inhibitors. Being the first, clinical experience is widest with sildenafil among the PDE5 inhibitors. It was discovered serendipitously during clinical trial for the drug's initial cardiac indication. Since then it has proved to be an effective oral treatment for ED with an efficacy rate of up to 80%. This is lowered in patients with severe medical conditions such as DM and after radical prostatectomy. It's absorption is affected by food especially oils and fat. Time to action is 20 mins to an hour. It is important to remind users that PDE5 inhibitors do not cause a spontaneous erection. Sexual stimulation is required to initiate the erection. It remains effective for up to 24 hours. Side effects are minimal. Blue vision occurs in about 3% of patients, usually in those on higher dosages. This is transient and no long-term

consequence is noted at present. Priapism is a rare occurrence. Clinical use has confirmed that it is a safe drug for ED in a wide range of patients. Tachyphylaxis has not been demonstrated with long term use at 2 years. Post-launch studies have not shown an increased incidence of myocardial infarcts among users. Contraindications include concurrent use of nitrates and nitric oxide donors, presence of retinitis pigmentosa, severe aortic stenosis, severe/ uncontrolled cardiac failure or hypertension, unstable angina, severe ventricular arrhythmias, obstructive cardiomyopathy and recent myocardial infarct. Recommended doses are 25, 50 and 100-mg prn. The 25-mg dose is no longer available locally.

1.3.2 Vardenafil (Levitra)

This drug is similar to sildenafil in efficacy and half-life except that it's absorption is not affected by food. However, a high fat meal may delay onset of action[3]. The contraindications are common to all PDE5 inhibitors, namely no concurrent use with nitrates or nitric oxide donors. The most commonly reported side effect in trials is headache[3]. As it was just launched in Singapore, clinical experience with the drug is forthcoming. Tablets are available in 10 and 20 mg doses.

1.3.3 Tadalafil (Cialis)

The main difference of Cialis from the other PDE5 inhibitors is the long half-life of 18 hours with possible duration of action of 36 hours. It is also reported to have minimal activity against PDE6 receptors on the retina. Absorption is not impaired by food in any way. Clinical experience with the drug is still in early stages. Potential side effects include myalgia and backache[4]. Only 20-mg dose is available locally. This gives an efficacy of 80%.

Others

1.4 Apomorphine (Uprima)

This acts centrally upon the dopamine D2 receptor in the paraventricular nucleus of the hypothalamus. It is administered sublingually. The efficacy rate is 47 to 60%. Main concerns are nausea and possible vaso-vagal syncope in trial users. It has been launched in Europe. Preferred dosages are 2 and 3 mg.

1.5 Testosterone

Although testosterone improves libido, it has no direct effect on erection. The current opinion is that it primes the system for erection. There is some indirect clinical evidence to support this. Users who fail to have an erection with sildenafil were found to be more likely to have low testosterone levels.

2. Topical treatments

Topical treatment consists of applications of vasodilators such as PGE1 or testosterone preparations in cream or gel form. Although there is an observed improvement in the degree of erection, meta-analysis of placebo-controlled studies has not shown topical PGE1 treatment to be significantly better than control5. Side effects include headache and localized pain.

3. Intraurethral therapy – Medicated Urethral Suppository for Erection (MUSE)

This consists of a pellet of PGE1 inserted into the urethra with the aid of a small plastic applicator. The penis is then massaged for a few minutes to hasten the absorption of the drug into the corpora. Erection is spontaneous and occurs in about 20 minutes. Efficacy rate is about 65%. Side effects include a burning sensation of the urethra and mild dysuria. It is contraindicated in anyone with urethritis and urethral stricture. The user's eyesight and manual dexterity and ability to follow instructions in proper handling of the device should be taken into consideration before prescribing it's use. As the active component is PGE1, the drug needs to be refrigerated. The preferred dose is 1000 ug. This treatment is not available in Singapore at present.

4. Injectables

Vasodilators can be injected directly into the corpora to induce an erection. Common injectable agents include PGE1, papaverine, phentolamine and vasointestinal peptide (VIP). These remain a valuable part of the treatment armamentarium because of the direct delivery of the drug to the corpora without the problems of digestive absorption and first pass effect. It gives a spontaneous and rigid erection with an efficacy rate of 75–80%. Drawbacks include pain and possible fibrosis at the injection sites. The incidence of fibrosis is low. Priapism is more likely with injectables than the other treatments. The most popular agent is PGE1. Usual doses used are 10, 20 or 40 ug. It may be used alone or in combination, usually with papaverine and phentolamine. The latter is commonly known as Triple Therapy.

5. Vacuum Device

This consists of a cylinder placed over the penis. Vacuum is then created in the cylinder by a pump. The vacuum forms a negative pressure around the penis and draws blood into the penis for an erection. A constriction band placed around the base of the penis maintains the erection. Users should be reminded to remove the band after 30 minutes as it may lead to ischemia. Being a mechanical device, it avoids the use of drugs and chemicals and appeals to those concerned about drug side effects.

6. Surgery

Penile prosthesis

Penile prosthesis remains the most popular surgical option for ED at present. It has a long history of durable good results with follow-up exceeding 10 years. The preferred implant is the 3-piece inflatable prosthesis. Success rate is 80%. Failure is usually a result of infection and implant failure. The latter may be corrected by replacing the faulty component. There is usually a lifetime warranty for replacement components for the device. The cost of the device and the need for surgery are potential drawbacks. As the spongy corporal tissue is removed to insert the cylinders, no other therapy will work after penile implant surgery.

As venous ligation lacks satisfactory long-term results, venous leak surgery is not widely advocated.

Penile revascularisation surgery has the most favorable result in young patients with vascular injury from trauma with single segment obstruction. Careful patient selection is crucial for good outcome.

REFERENCES

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LEARNING POINTS

- There is now a variety of treatment options for ED
- Oral therapy is the most convenient. PDE 5 inhibitors are the most popular
- Non-drug therapy consists of vacuum device and penile prosthesis.