ERECTILE DYSFUNCTION (ED)

Top tips for MURs

- Check adherence with prescribed medicines
- Check patient understands how to use medicines for erectile dysfunction (ED):
- Phosphodiesterase type-5 inhibitors (PDE-5 inhibitors) should only be used once in 24 hours:
  - Sildenafil, should be taken at least one hour before sexual activity
  - Tadadafil (higher dose (10-20mg)) should be taken at least 30 minutes before sexual activity
  - Vardenafil should be taken at least 25-60 minutes before sexual activity
  - Avanafil should be taken 15-30 minutes before sexual activity
- Advise how to take in relation with food; most PDE-5 inhibitors are best taken on an empty stomach as the onset of effect can take longer with food. Vardenafil's onset of action may be delayed if taken with or after high-fat meals, Tadalafil may be taken with or without food
- If the patient mentions that PDE-5 inhibitors are ineffective discuss the potential reasons why. The patient may have not waited long enough after taking the dose, they may have waited too long after taking the dose, the dose may need adjusting or they may not have had enough sexual stimulation (these medicines only work in the presence of sexual stimulation)[1,2]
- Advise that lifestyle is as important as drug management for ED, since the underlying condition may be physical **(see lifestyle section below)**
- Check that the patient has been evaluated for the presence of cardiovascular risk factors, as ED increases the risk of cardiovascular disease. ED may be the first presentation of conditions such as hypertension or diabetes[2,3].
- Consider whether other medications may be causing the underlying ED, for example, antihypertensives, antidepressants, antipsychotics, cytotoxic drugs and alcohol. If concerned, refer the patient to the prescriber; the patient not should be advised to stop any medication without first consulting the doctor
- Establish whether the patient is using any unlicensed herbal remedies and advise the patient against their use; these medicines are not regulated and may interact with prescribed medicines[1]
- Advise men who cycle for more than 3 hours per week to stop cycling to see if this improves their ED. If this is not possible, advise on preventative measures such as the use of a properly fitted bicycle seat and alteration of the seating position[3]
- Signpost the patient to other sources of help, such as the Sexual Dysfunction Association, Relate or the Sexual Advice Association[4,5]. Alternatively, the patient could be referred to a genitourinary medicine (GUM) clinic for further support and advice
- Counsel patients on common side effects **(see overleaf)** and signs and symptoms of complications that need referral **(see red flags below)**
- Report any relevant adverse drug reactions to the yellow card scheme

Pathophysiology of ED

Erectile dysfunction (ED) or impotence, is the persistent inability to attain and maintain an erection that is sufficient to permit satisfactory sexual performance[2,3]. ED is a symptom, not a disease and the underlying causes should be elucidated[3]. The causes may be physical, for example due to diabetes or cardiovascular disease, psychological or due to the adverse effects of medicines, for example antihypertensive medicines. Predisposing risk factors include sedentary lifestyle, obesity, smoking, hypercholesterolaemia, hypertension and metabolic syndrome[2,6].

How do drugs or devices used to treat ED work?

Phosphodiesterase type-5 inhibitors	Increase blood flow to the penis – sexual stimulation is required for erection.
Prostaglandin E1(alprostadil)	Second-line treatment – promotes relaxation of penile vascular smooth muscle cells, which induces erection.[7]
Vacuum pumps	Vacuums increase blood flow to the penis, making it erect[6]. The rubber ring worn around the base of the penis allows the erection to be maintained.

Lifestyle issues

Advise the patient that there is evidence that modifying lifestyle can help improve ED and general cardiovascular health[2]

- Counsel patient on reducing alcohol intake to within safe limits (up to 14 units a week, spread evenly over 3 or more days)
- Counsel patient on healthy eating, exercise & weight loss (if BMI > 25kg/m^2) – reduce saturated fat and salt intake, increase oily fish intake, complete a minimum of 30 minutes moderate intensity physical activity, five times a week. Reduce caffeine intake to no more than 5 cups a day and recommend 5 portions of fruit and vegetables a day
- Advise that there is evidence that a Mediterranean diet may help ED (a diet high in fruits, vegetables, nuts, whole grains and fish, and low in red and processed meat and refined grains)[3]
- Advise patients who smoke the benefits of stopping smoking and how to access pharmacy smoking cessation services or 'Help Me Quit' resources

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Red flags that need referral

- Priapism – patients who present with prolonged erection (greater than 4 hours), should be referred urgently. Advise application of an ice pack to the upper-inner thigh[2].
- Patients with a predisposition to priapism – e.g. sickle-cell disease, multiple myeloma or leukaemia[3]
- Patients with severe cardiovascular disease e.g. recent stroke, unstable angina, severe heart failure, unstable dysrhythmia or recent myocardial infarction[3]
- Patients with hypotension (systolic blood pressure below 90mmHg)[3]
- Patients taking PDE-5 inhibitors who present with sudden visual disturbances (medicines must be stopped as non-arteritic anterior ischaemic optic neuropathy has been reported)[3]
- Young men with difficulty obtaining or maintaining an erection[3]
- Men with a history of pelvic trauma[3,6]
- Men who do not respond to treatment

What are the common side effects to look out for?

Drug	Common side effects	Recommendation
Phosphodiesterase type-5 inhibitor	Dyspepsia, nausea, vomiting, headache (including migraine), flushing, dizziness, myalgia, back pain, visual disturbances, hypotension[2], nasal congestion and blurred vision.	If problematic, refer to prescriber.
Prostaglandin E1 (Alprostadil)	Priapism, anatomical deformation of penis (painful erections), penile fibrosis, penile rash, penile oedema, hypotension, dizziness, headache, other localised pain e.g. leg, influenza-like syndrome, urethral burning and bleeding[2]	If problematic, refer to prescriber.
Vacuum pumps	Unusual – pain, bruising.	If problematic, refer to prescriber.

Potential drug interactions?

Medicines used for ED can interact with other medications - **See BNF Appendix1 and Summary of Product Characteristics (SPCs) for more information**

- PDE-5 inhibitor + alpha-blocker – increased risk of postural hypotension. MHRA advice: patients receiving treatment with an alpha-blocker should only use a low dose phosphodiesterate type-5 inhibitor once they have completed alpha blocker dose titration and are on a stable dose. Patient may need to be started on a lower dose, **see BNF/SPCs** for up to date recommendations[2]
- PDE-5 inhibitor + cytochrome P450 inhibitors e.g. diltiazem, erythromycin, fluconazole and verapamil – patient may need dose reduction; avanafil can only be used up to maximum dose of 100mg every 48 hours concomitantly with cytochrome P450 inhibitors[2]
- Concomitant use of PDE-5 inhibitors with nitrates or nicorandil is contraindicated (enhanced hypotensive effect)[2]
- Alprostadil – enhanced hypotensive effect with antihypertensives and nitrates[2]

References / Where can you find more information?

1. NHS Choices **http://www.nhs.uk/pages/home.aspx**
2. BNF: subsections 2.5, 6.4 : erectile dysfunction and male sex hormones and antagonists
3. CKS: NICE Clinical Knowledge Summaries: Erectile dysfunction **https://cks.nice.org.uk/erectile-dysfunction**
4. Sexual Dysfunction Association **www.sda.uk.net**
5. Sexual Advice Association : **http://sexualadviceassociation.co.uk/erectile-dysfunction/**
6. Patient.info : **https://patient.info/health/erectile-dysfunction-impotence**
7. Nehra A *Oral and Non-Oral Combination Therapy for Erectile Dysfunction* Reviews in Urology 2007 9(3) : 99-105

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