Urinary tract disorders

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For full information on treatment side effects, cautions and contraindications, see electronic British National Formulary (www.bnf.org) or the relevant summary of product characteristics (www.medicines.org.uk).

For information on preparing intravenous medicines for administration, see Medusa Injectable Medicines Guide for the NHS (see Clinical Guidance home page)

1. Urinary retention

Tamsulosin and alfuzosin bind selectively and competitively to postsynaptic alpha1-receptors, in particular to the subtype alpha1A, which causes smooth muscle relaxation in the prostate and urethra. In turn, muscular tone is reduced and urinary flow rate is maximised.

The main reasons for treatment include:

i) Lower urinary tract symptoms suggestive of benign prostatic obstruction
ii) Acute urinary retention
iii) Urinary retention associated with benign prostatic hyperplasia and hypertension

i) Lower urinary tract symptoms suggestive of benign prostatic obstruction

First choice

Tamsulosin hydrochloride modified release 400 micrograms, orally, once daily after food
Second choice
**Alfuzosin hydrochloride modified release** 10mg, orally, once daily

If patient’s prostate is enlarged
**Finasteride** 5mg, orally, once a day.

**ii) Acute urinary retention**

Catheterise, then give

**Alfuzosin hydrochloride modified release** 10mg, orally, once daily for 2-3 days during catheterisation and one day after catheter removal; may need to consider continuing if urinary symptoms persist.

**NOTE:** Alpha-blockers cause hypotension therefore patients receiving antihypertensive treatment may require reduced dosage.

**iii) Urinary retention associated with benign prostatic hyperplasia and hypertension**

**Doxazosin** 1mg, orally, once daily. Dose may be doubled every 1–2 weeks according to response. Max: 8mg daily. Usual maintenance: 2–4mg daily.

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### 2. Urinary incontinence

This can be divided into key classes:

- **i) Overactive bladder**
- **ii) Stress incontinence in women**
- **iii) Nocturnal urinary incontinence**

Patients should be assessed using a frequency volume chart and, preferably, a full urodynamic diagnosis should be made for all patients with incontinence before starting drug therapy.

**NOTE:** Metabolic disorders (e.g. diabetes) should be excluded

For more information on the management of these conditions, see [Bladder dysfunction: prescribing treatment for adults](#).

**i) Overactive bladder**

First choice
**Non-pharmacological treatment** Initial treatment consists of lifestyle interventions, pelvic floor exercises and bladder retraining. If these measures prove insufficient then pharmacological agents can be considered.

Second choice
Use pharmacological treatment in order listed below.
Pharmacological agents are appropriate for stress incontinence due to sphincteric incompetence, mixed incontinence and for patients with an overactive bladder. An initial response would be expected within 4 weeks of commencing treatment. Assess benefit again after 12 weeks — if no response, stop and consider an alternative.

**Step 1**

**Oxybutynin modified release** 5mg, orally, once daily; increase at weekly intervals to 20mg daily

*NOTE: Standard-release oxybutynin is considerably less expensive than modified release and is recommended as a first-line treatment option by NICE. Its use may be limited by the incidence of side effects (which can be reduced by starting at a lower dose). Daily doses above 10mg of the modified release preparation are considerably more expensive than all other treatments.*

**Step 2** (if CNS adverse effects troublesome)

**Trospium chloride modified release** 60mg, orally, once daily

**Step 3**

**Tolterodine modified release** 4mg, orally, once daily

**Step 4** — for specialist initiation, only after all other options have been tried

**Solifenacin** 5mg, orally, once daily. Increase, if necessary, to 10mg daily.

If side effects with oral agents prove problematic

**Oxybutynin 36mg transdermal patch (3.9mg/24 hours)** One patch to be applied every 3 to 4 days.

Standard-release oxybutynin can be prescribed “when required” (3 to 5mg, orally, up to three times a day); either as monotherapy or in addition to other agents. It is also used for post surgery bladder spasm.

Intravesicular oxybutynin (unlicensed) is reserved for secondary care prescribing.

If failed on, or contraindicated for, all other formulary treatments

**Mirabegron** 50mg, orally, daily.

*NOTE: To be initiated by a consultant from gynaecology or urology ONLY, as per NICE technology appraisal 290 ([www.nice.org.uk/ta290](http://www.nice.org.uk/ta290))*

**ii) Stress incontinence in women**

**Duloxetine** 20mg, orally, twice daily. Increase to 40mg twice daily if required. Must be used as adjunct to physiotherapy for full effectiveness.

Reserved for those not suitable for surgery, or who have a history of failed surgery.

*NOTE: Consultant or Wirral Integrated Continence Service initiation ONLY.*

**iii) Nocturnal urinary incontinence**

**Amitriptyline** 25 to 50mg, orally, daily at bedtime (unlicensed in adults)

*Or*
**Imipramine** 50 to 75mg, orally, daily at bedtime (unlicensed in adults)

*Or, in adults up to 65 years of age*

**Desmopressin** 200 micrograms, orally, daily at bedtime. Maximum: 400 micrograms daily. Withdraw for at least one week for reassessment after 3 months.

**NOTE:** Desmopressin is contraindicated for patients with cardiac insufficiency or those who require treatment with diuretics.

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### 3. Urethral pain — prevention during catheterisation

Lignocaine 2% and chlorhexidine 0.25% gel (Instillagel®) Instil into urethra at least 5 minutes before catheter insertion.

**NOTE:** Distal urethral pain in males is often referred pain from the proximal urethra or bladder and may not respond to local anaesthetic.

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### 4. Indwelling catheters— maintenance of patency

Bladder washouts are closed systems for direct connection onto the catheter funnel. The bag is left connected to the catheter for at least 20 minutes during which time the solution remains in the bladder. The solution and accumulated urine can then be collected in the bag. Consider more active catheter flushing via a catheter tipped syringe if blockages/debris are frequent as this will disturb and drain more debris. To facilitate catheter patency, a urine output of 1500mL per day is advised.

First choice

**Sodium chloride 0.9%** 100mL bladder washout (currently, the most cost effective brand is Optiflo S)

Second choice — if powdery encrustations are present

**Solution G** (citrate solution) 100mL bladder washout (currently, the most cost effective brand is Optiflo G)

Use of antiseptic bladder washouts may predispose to the emergence of resistant organisms and are not recommended for use. If infection is suspected, remove the catheter (if possible) or treat with a systemic antibiotic.

Recurrent catheter blockages — prevention of debris build up

**Vitamin C (ascorbic acid)** 1g, orally, four times daily.
5. Interstitial cystitis

First choice

**Chondroitin sulphate (Uracyst®)** 400mg, as bladder instillation, once a week for 4 to 6 weeks then monthly until symptoms are relieved; retain in the bladder for as long as possible then void;

*Or*

**Dimethyl sulfoxide 50% solution (DMSO)** instil 50ml into the bladder, retain for 15 minutes then void; repeated every two weeks. Bladder spasm or hypersensitivity reactions may occur. Six-monthly ophthalmic, renal and hepatic assessment required if used long term.

**NOTE:** This is an unlicensed medicine

*Or*

**Pentosan polysulphate** 100mg, orally, three times daily; take at least 1 hour before or 2 hours after meals.

**NOTE:** Pentosan polysulphate is contraindicated for patients with haemorrhagic disorders, bacterial endocarditis, active gastroduodenal ulceration, hypersensitivity to heparin or previous thrombocytopenia with heparin.

**NOTE:** This is an unlicensed medicine. To be initiated by a consultant urologist ONLY

**NOTE:** Current practice is to initiate new patients on chondroitin sulphate and to switch existing patients to this product also. It has been agreed by DTC that patients who do not respond to chondroitin sulphate can be maintained on sodium hyaluronate.

6. Erectile dysfunction

See [Erectile dysfunction — Initial management in primary care (adults)](Erectile%20dysfunction%20-%20Initial%20management%20in%20primary%20care%20(adults)). for treatment guidelines, including who to treat and how to conduct an initial assessment,

All patients who meet NICE criteria should be offered a trial of 4 doses of a phosphodiesterase type-5 (PDE5) inhibitor unless contraindicated. These drugs’ onset of action can be delayed if they are taken with food.

PDE5 inhibitors are effective in approximately 80% of patients. Patients who fail to respond or cannot be prescribed a PDE5 inhibitor should be referred to the erectile dysfunction clinic.

First choice

**Sildenafil** 50mg, orally, approx 1 hour before sexual activity; adjust subsequent doses according to response if necessary to 25 to 100mg. Max: 1 dose in 24 hours.

Approximate duration of action: up to 5 hours.

Second choice

**Vardenafil** 10mg (elderly 5mg), orally, 25 to 60 minutes before sexual activity; adjust subsequent doses to response if necessary to 5 to 20mg. Max: 1 dose in 24 hours.

Approximate duration of action: up to 5 hours.
Third choice
**Tadalafil** 10mg, orally, at least 30 minutes before sexual activity; adjust subsequent doses up to max of 20mg if necessary. Max: 1 dose in 24 hours.
Approximate duration of action: up to 36 hours.

**NOTE: PDE5 inhibitors are contraindicated for patients who:**
- Are taking nicorandil or nitrates
- Have suffered an MI within the last 90 days (or the previous 6 months for vardenafil)
- Have suffered a cerebrovascular accident within the previous 6 months
- Have unstable angina or uncontrolled arrhythmias.
- Have hypotension (blood pressure < 90/50 mmHg) or uncontrolled hypertension
- Have severe hepatic impairment
- Have retinitis pigmentosa

By specialist (secondary care) initiation only
**Alprostadil**, transurethrally (MUSE® urethral stick); max: 2 doses in 24 hours and 7 doses in 7 days. First dose must be given by trained medical personnel.
*Or*
**Alprostadil**, intracavernosally (Caverject®); max: 1 dose in 24 hours and 3 doses per 7 days. First dose must be given by trained medical personnel.
*Or*
**Active Il® vacuum pump**

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7. **Testosterone deficiency**

Replacement therapy with testosterone can be prescribed for male patients with hypogonadism once testosterone deficiency has been confirmed by clinical symptoms and laboratory analysis.

**Sustanon 250®** Give 1mL, by deep IM injection, usually every 3 weeks.
*Or*
**Testosterone 2% gel (Tostran®)** Apply 3g (60mg testosterone) of gel to clean, dry, intact skin of the abdomen or both inner thighs, once a day. Adjust dose to response; max dose: 4g/day. Do not wash application site for 2 hours.
**NOTE: It is essential to monitor PSA (prostate specific antigen) annually for all patients receiving testosterone therapy (more frequently if the PSA is raised or rising).**

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8. **Priapism**

Section under development