

REFERRAL

- renal failure
- for biopsy if associated constitutional symptoms or weight loss
- hydronephrosis
- recurrent urinary tract infections
- raised PSA > 4 ng/mL
- urinary retention
- urge incontinence
- suspected prostate cancer on digital rectal examination
- suspected TB of prostate gland on biopsy
- haematuria
- bladder calculi

7.2.3 BLADDER DYSKINESIA

N39.4

DESCRIPTION

Hyperactivity or hyperplasia of the detrusor muscle, or failure of the detrusor muscle to contract.

NON-DRUG TREATMENT

Health education.

Clean intermittent self-catheterisation (CISC).

Indwelling catheter, suprapubic or transurethral.

Surgical therapy, where indicated: e.g. enterocystoplasty, urinary diversion, or continence surgery as decided by the surgeon.

DRUG TREATMENT

For detrusor hyperactivity demonstrated on urodynamic studies:

- imipramine oral, 25–50 mg 3 times daily

PLUS

- propantheline, oral, 15 mg 3 times daily for 12 weeks. Urologist initiated.
Follow with 30 mg at night.
Higher doses may be required.

OR

oxybutynin, oral, 2.5–5 mg 3 times daily. Urologist initiated.

REFERRAL

- for confirmation of diagnosis
- complications

7.2.4 IMPOTENCE

F52.2

DESCRIPTION

The inability to attain and maintain an erect penis with sufficient rigidity for vaginal penetration. Organic causes include neurogenic, vasculogenic, endocrinological as well as many systemic diseases and medications.

NON-DRUG TREATMENT

Thorough medical and psychosexual history.

Examination should rule out gynecomastia, testicular atrophy or penile abnormalities.

Consider the removal of drugs that may be associated with the problem.

A change in lifestyle or medications may resolve the problem.

DRUG TREATMENT

Treat the underlying condition.

In patients with proven testosterone deficiency:

- testosterone. Specialist initiated.

REFERRAL

- where an organic disease or medical condition is suspected as a cause to urologist or appropriate specialist if surgical intervention is needed then, e.g. penile prostheses, vascular surgery and pelvic fractures

7.2.5 RENAL CALCULI

N20.2

DESCRIPTION

This is a kidney stone or calculus which has formed in the renal tract i.e. pelvis, ureters or bladder as a result of urine which is supersaturated with respect to a stone-forming salt.

NON-DRUG TREATMENT**Acute stage**

Oral fluids administered liberally.

IV fluids to ensure adequate hydration and urine flow.

Surgical procedures if required.

Maintenance therapy, for the prevention of recurrence

Fluid intake of at least 2.5–3.5 L/day, especially in warm climates.

DRUG TREATMENT

Analgesia for pain.

For hypocitraturia:

- potassium citrate mixture BP, oral, 10–15 mL, well diluted with water, 3 times daily for 10 days. Repeat as necessary.

For uric acid stones (not necessarily gout):

- potassium citrate mixture BP, oral, 10–15 mL, well diluted with water, 3 times daily for 10 days. Repeat as necessary

PLUS

- allopurinol, oral, 300 mg at night
Start at 100 mg, up-titrate to 300 mg.

The treatment is long-term to prevent recurrence.



CHAPTER 7 **NEPHROLOGICAL/UROLOGICAL DISORDERS**

For mild metabolic hyperoxaluria (MMO):

- pyridoxine, oral, 25–75 mg daily

PLUS

- calcium carbonate, oral, 500–1 000 mg 3 times daily with meals for a few weeks

For renal hypercalciuria (absorptive type):

- hydrochlorothiazide, oral, 50 mg daily for 1 month
May be repeated.

REFERRAL

- in acute setting for suspected or diagnosed obstruction and/or ongoing pain
- complicating urinary tract sepsis
- renal damage or insufficiency i.e. presence of CKD at time of diagnosis or afterwards
- recurrent calculi
- if medical problem is suspected to be the cause e.g. chronic UTI and Crohn's disease and expertise to make diagnosis does not exist



CHAPTER 8 ENDOCRINE SYSTEM

8.1 ACROMEGALY

E22

This condition should be managed at a tertiary centre.

REFERRAL

Patients should be referred to a hospital with endocrine and neurosurgery facilities.

Transsphenoidal hypophysectomy is the accepted form of therapy.

Radiotherapy post operatively if required in most cases (with large tumours).

8.2 ADRENAL INSUFFICIENCY (ADDISON'S DISEASE)

E27

DESCRIPTION

Primary adrenocortical insufficiency.

CLINICAL PRESENTATION

Acute crisis:

- hypotensive shock
- fever
- GIT disturbances
- dehydration
- weakness
- depressed mentation
- hypoglycaemia
- hyponatremia
- hyperkalaemia
- acidosis

Chronic:

- hyperpigmentation
- weakness and fatigue
- loss of weight
- postural dizziness
- GIT disturbances
- hypotension
- hypoglycaemia
- hyponatraemia

Always consider in a thin, hypotensive, hypoglycaemia patient, or during stress e.g. sepsis.

INVESTIGATIONS

08:00 cortisol level

- > 550 nmol/L: excludes the diagnosis
- < 100 nmol/L: highly suggestive of Addison's disease
- 100–550 nmol/L is indeterminate and may require an ACTH stimulation test which is done on referral to a centre with the appropriate expertise and access to the investigational agent.

Posttest level should be > 550 nmol/L or double the pre-test level.

This can be done with adrenocorticotrophic hormone, which stimulates maximal adrenocortical secretion:

- ACTH, IM, 1 mg with blood sampling at 45 minutes

DRUG TREATMENT**ACUTE CRISIS**

Exclude sepsis.

- hydrocortisone, IV, 100–500 mg 6 hourly as required
Gradually taper to maintenance dose according to patient's clinical status.
- Add mineralocorticoid therapy when maintenance doses reached.

To maintain adequate intravascular volume:

- sodium chloride 0.9%, IV
Several litres may be required in the first 24–48 hours.

To reduce the risk of hypoglycaemia:

- dextrose, IV/oral

CHRONIC

As maintenance therapy:

- hydrocortisone, oral
10–20 mg in the morning.
5–10 mg at night.

OR

prednisone, oral, 5–7.5 mg daily

For patients who remain symptomatically hypotensive:

- fludrocortisone, oral, 50–100 mcg daily
Monitor therapy with:
 - symptoms: improvement in fatigue and GIT disturbances
 - blood pressure: normotensive and no postural drop
 - electrolytes: normal Na⁺ and K⁺

Note:

All patients should wear an alert bracelet.

All patients must receive increased doses of glucocorticoids during times of “stress” i.e. acute illness, surgery, trauma, etc.

For severe stress:

- hydrocortisone, IV, 100 mg 6 hourly

REFERRAL

- all suspected cases for full evaluation

8.3 ANDROGEN DEFICIENCY

E29.1

DESCRIPTION

Deficient testosterone production or action due to hypothalamic/pituitary hypofunction or due to primary testicular failure.

INVESTIGATIONS

- 09:00 am serum testosterone
- LH and FSH
- further investigations to determine cause to be undertaken after referral

Monitoring therapy

- PSA
- Haematocrit and haemoglobin
- Serum testosterone should be performed on the day of intramuscular injections just before administration to determine trough levels
- Lipids

DRUG TREATMENT

Individualise dosage and review doses on clinical response.

- testosterone, IM, 200–300 mg every 2–4 weeks

8.4 CUSHING'S SYNDROME

E24.9

DESCRIPTION

Cushing's Syndrome is an illness resulting from excess cortisol secretion or exogenous glucocorticoid administration. Cushing's Disease is hypercortisolism secondary to an ACTH secreting pituitary tumour.

INVESTIGATIONS

Screening tests for Cushing's syndrome:

24 hour urinary free cortisol which is elevated

Low dose dexamethasone suppression test to confirm Cushing's syndrome and high dose to try to determine aetiology:

- betamethasone or dexamethasone, oral, 1 mg
Administer at 23:00 or 24:00.
Measure plasma cortisol at 07:00 or 08:00 in the morning.
In normal patients morning cortisol will be suppressed to ≤ 138 nmol/L.
Patients with Cushing's syndrome will have morning cortisol level of at least 248 nmol/L and will not suppress their cortisol.

NON-DRUG TREATMENT

Patient's general condition may be supported by appropriate administration of a high protein intake.

DRUG TREATMENT

Consider potassium replacement if hypokalaemic.

REFERRAL

- all cases for investigation of aetiology and appropriate management

8.5 DIABETES MELLITUS**DESCRIPTION****Types**

- type 1: Insulin-Dependent Diabetes Mellitus (IDDM)
- type 2: Non-Insulin Dependent Diabetes Mellitus (NIDDM)
- pancreatic diabetes mellitus
- gestational diabetes mellitus – See Section 6.3: Diabetes Mellitus and Glucose Intolerance in Pregnancy

NON-DRUG TREATMENT

All patients require lifestyle modification.

In patients with type 2 diabetes mellitus, appropriate weight loss if weight exceeds ideal weight.

Correct meal/energy distribution in type 1 diabetes mellitus.

Moderate or no alcohol intake.

Cessation of smoking and discourage commencement of smoking.

Increased physical activity within limits i.e. aerobic exercise 3 times per week for 30–40 minutes.

Education for foot care.

MONITORING

- glycated haemoglobin preferably 3 monthly in all diabetics
- blood glucose at every visit
- weight and blood pressure at every visit
- potassium, creatinine and lipids annually
- funduscopy annually
- proteinuria annually

Biochemical Index	Optimal	Acceptable	Additional action suggested
Capillary blood glucose values (finger-prick)			
fasting (mmol/L)	4–6	6–8	> 8
2-hour post-prandial (mmol/L)	4–8	8–10	> 10
Glycated haemoglobin (HbA _{1c}) (%)	< 7	7–8	> 8
Weight: BMI (kg/m ²)	< 25		> 27

REFERRAL

- inability to advise optimal metabolic control
- complications that cannot be managed on site, especially ophthalmic, e.g. cataracts and proliferative retinopathy

**8.5.1 NON-INSULIN DEPENDENT DIABETES MELLITUS (NIDDM)
– TYPE 2**

E11

The management includes:

- treatment of hyperglycaemia
- treatment of hypertension and dyslipidaemia after risk-assessment. See Section 3.5: Hypertension
- prevention and treatment of microvascular complications
- prevention and treatment of macrovascular complications

DRUG TREATMENT**ORAL BLOOD GLUCOSE LOWERING DRUGS**

Oral drugs are indicated when individualised glycaemic targets are not met by the combination of dietary modifications and physical activity/exercise.

In some cases, oral drugs are indicated at the first presentation of diabetes i.e. fasting blood glucose level of more than 15 mmol/L.

These agents may be used as monotherapy or in combination therapy targeting different aspects in the pathogenesis of hyperglycaemia in type 2 diabetes mellitus, i.e. increased insulin production and release, decrease insulin resistance and/or decrease hepatic glucose production.

Monotherapy with any of the drugs should be the initial choice. Use of stepped-care approach is recommended to clinicians.

Combination therapy using oral agents with different mechanisms of action is indicated if monotherapy with one of the agents has failed.

When oral combination therapy fails, insulin should be added to the treatment regimen or replace the oral agents.

Secondary failure of oral agents is said to be common, i.e. 5–10% of patients annually. If overweight, i.e. BMI > 25 kg/m², metformin should be the first choice.

Sulphonylurea derivatives: glibenclamide or gliclazide

- glibenclamide, oral, 2.5 mg daily with breakfast
 - Dose increments if the blood or urine glucose is uncontrolled:
 - Increase with 2.5 mg daily at two-weekly intervals.
 - Maximum dose: 15 mg daily.
 - If 7.5 mg or more is needed, divide the total daily dose into 2, with the larger dose in the morning.

OR

If an alternative is required, e.g. in the elderly and patients with renal impairment:

- gliclazide, oral, 40 mg daily with breakfast
 - Dose increments if the blood or urine glucose is uncontrolled:
 - Increase with 40 mg daily at two-weekly intervals.
 - Maximum dose: 160 mg twice daily.
 - If 80 mg or more is needed, divide the total daily dose into 2.

Biguanides: metformin

- metformin, oral, 500 mg daily
Dose increments if the blood or urine glucose is uncontrolled:
Increase to 500 mg twice daily after two weeks.
Increase to 850 mg twice daily after another two weeks if needed.
Maximum dose: 850 mg three times daily.
Contra-indicated in:
patients with a serum creatine of ≥ 50 micromol/L
uncontrolled congestive cardiac failure
impaired liver function

INSULIN THERAPY IN TYPE 2 DIABETES

See insulin protocols as in type 1 diabetes mellitus below.

Insulin therapy is indicated in:

- secondary failure with oral drugs, i.e. combination/substitution insulin therapy
- peri-operative period especially major or emergency surgery
- severe kidney or liver failure
- pregnancy
- latent autoimmune diabetes in adults

Oral agents should not be used in Type 1 diabetes, severe kidney and hepatic impairment. The regimen and dose of insulin therapy vary from patient to patient.

Two forms of insulin therapy are often used in combination with oral blood glucose lowering drugs:

- intermediate or long acting insulin plus oral agents or
- premixed combination of short acting with intermediate acting insulin.

At initiation of insulin therapy, appropriate advice on self-blood glucose monitoring (SBGM) and diet should be given.

Note:

Insulin requirements decrease in patients with chronic renal impairment. In these situations, blood glucose monitoring must be regularly (at least daily) performed in order to reduce the dose appropriately, reducing the risk of hypoglycaemia.

8.5.2 INSULIN DEPENDENT DIABETES MELLITUS (IDDM) TYPE 1

E10

The management includes:

- maintenance of glycaemic control within acceptable limits
- prevention of chronic complications
- prevention of acute complications, e.g. hyperglycaemic and hypoglycaemic coma

INSULIN PROTOCOLS

- insulin, soluble, short acting, SC, three times daily, 30 minutes prior to meals
Regular human insulin.
Onset of action: 30 minutes.
Peak action: 2–5 hours.
Duration of action: 5–8 hours.