

Stage I (Mild): SBP 140–159 mmHg and/or DBP 90–99 mmHg

- no risk factor, TOD/CCD:
Low risk: lifestyle modification for 3 months only and then drug therapy as resources permit.
- ≥ 1 major risk factor, no TOD/CCD:
Medium risk: lifestyle modification for 3 months only then drug therapy as resources permit.
- TOD/CCD, diabetes mellitus with or without other risk factors:
High risk: lifestyle modification and drug therapy for those with heart failure, diabetes mellitus or chronic kidney disease.

Stage II (Moderate): SBP 160–179 mmHg and/or DBP 100–109 mmHg

- no risk factor, TOD/CCD:
Medium risk: lifestyle modification and recheck BP within 2 weeks, then start drug therapy.
- ≥ 1 major risk factor, no TOD/CCD:
Medium risk: lifestyle modification and recheck BP within 2 weeks, then start drug therapy.
- TOD/CCD, diabetes mellitus with or without other risk factors:
Very high risk: lifestyle modification and drug therapy for those with heart failure, diabetes mellitus or chronic kidney disease.

Stage III (Severe): SBP ≥ 180 mmHg and/or DBP ≥ 110 mmHg

May need referral*.

- no risk factor; TOD/CCD
- ≥ 1 major risk factor ; no TOD/CCD
- TOD/CCD ; diabetes mellitus with or without other risk factors:

Asymptomatic severe hypertension (very high risk):

Recheck BP after 1 hour.

Start drug therapy with 2 agents.

Hypertensive urgency and emergency can occur in this group and should be treated as indicated below and in the text.

Hypertensive urgency (very high risk):

Start drug therapy with 2 agents.

Hypertensive emergency (very high risk):

Parenteral drug therapy in a high care facility.

If not at goal blood pressure:

Optimise dosages or add additional drugs until goal blood pressure is achieved.

Consider consultation with a specialist.

Note:

- check adherence to drug treatment
- advise patient to take medication on the day of the clinic visit, as missing a dose can be a reason for a high BP reading
- monitor patients monthly and adjust therapy if necessary until the BP is controlled
- after target BP is achieved, patients can be seen at 3–6 monthly intervals

CAUTION

Lower BP over a few days.

**A sudden drop in BP can be dangerous, especially in the elderly.
BP should be controlled within 3–6 months.**

Risk assessment: 10 year risk of MI > 20%:

HMGCoA reductase inhibitors e.g.:

- simvastatin, oral, 10 mg daily. Specialist initiated.
This therapy requires good initial evaluation, ongoing support for patients and continuous evaluation to ensure compliance.
Therapy should be initiated together with appropriate lifestyle modification and adherence monitoring.

REFERRAL

Referral is dynamic and patients can be referred up to a specialist or down to PHC when controlled. Consultation without referral may be all that is necessary. Referrals are indicated when:

- the patient is compliant with therapy, and the blood pressure is refractory, i.e. > $^{140}/_{90}$ mmHg, while on drugs from three different classes, one of which being a diuretic
- all cases where secondary hypertension is suspected
- complicated hypertensive urgency e.g. malignant/accelerated hypertension, severe heart failure with hypertension and hypertensive emergency

3.5.1 HYPERTENSION, SEVERE**DESCRIPTION**

Asymptomatic severe hypertension.

These patients are **asymptomatic** and have severe hypertension with or without evidence of TOD.

Keep the patient in the care setting and repeat BP measurement after resting for 1 hour. If the second measurement is still elevated at the same level, start oral therapy using two drugs together, one of which should be low-dose hydrochlorothiazide. Follow-up carefully and refer as needed.

3.5.2 HYPERTENSIVE URGENCY**DESCRIPTION**

This level of hypertension is **symptomatic** with evidence of TOD or grade III/IV retinopathy (malignant/accelerated hypertension). There are no immediate life threatening neurological or cardiac complications such as are seen in the hypertensive emergencies. Thrombotic (ischaemic) stroke and intracerebral haemorrhage should be managed according to the South African Stroke Therapy Clinical Guideline.

Do not lower BP in acute stroke or use antihypertensive medication unless SBP > 220 mmHg or DBP > 120 mmHg, as a rapid fall may aggravate cerebral ischaemia and worsen the stroke.

If the BP is above these levels then treatment should aim not to lower the BP by more than 15–20% in the first 24 hours.

Treatment may be given orally but if the patient is unable to swallow then the use of parenteral drugs may be warranted.

DRUG TREATMENT

Ideally, all patients with hypertensive urgency should be treated in hospital. Commence treatment with two oral agents and aim to lower the DBP to 100 mmHg slowly over 48–72 hours. This BP lowering can be achieved by:

- long-acting calcium channel blocker
- ACE-inhibitor used in very low doses initially. Avoid if there is severe hyponatraemia (serum Na < 130 mmol/L).
- β -blockers
- diuretics may potentate the effects of the other classes of drugs when added. Furosemide should be used if there is renal insufficiency or signs of pulmonary congestion.

3.5.3 HYPERTENSIVE CRISIS, HYPERTENSIVE EMERGENCY

DESCRIPTION

This is a rare **life-threatening situation** which requires immediate lowering of BP usually with parenteral therapy.

The true emergency situation should preferably be treated by an appropriate specialist.

The life-threatening complications include:

- hypertensive encephalopathy, i.e. severe headache, visual disturbances, confusion, seizures and coma that may result in cerebral haemorrhage
- unstable angina or myocardial infarction
- acute left ventricular failure with severe pulmonary oedema (extreme breathlessness at rest)
- excessive circulating catecholamines: e.g. pheochromocytoma – rare cause of emergency; food or drug interaction with monoamine oxidase inhibitors
- eclampsia and severe pre-eclampsia
- acute kidney failure with encephalopathy
- acute aortic dissection

DRUG TREATMENT

Admit the patient to a high-care setting for parenteral drug therapy and close monitoring.

Do not lower the BP by > 25% within 30 minutes to 2 hours.

In the next 2–6 hours, aim to decrease BP to $^{160}/_{100}$ mmHg.

This may be achieved by the use of intravenous or oral drugs.

INTRAVENOUS THERAPY

Labetalol

- labetalol, IV, 2 mg/minute to a total dose of 1–2 mg/kg
Caution in acute pulmonary oedema.

OR

If myocardial ischaemia and CCF:

- glyceryl trinitrate, IV, 5–10 mcg/minute

Furosemide

- furosemide, IV, 40–80 mg
Acts only for 6 hours.
Potentiates all of the above drugs.

ORAL THERAPY

Use only if intravenous drugs are not available.

ACE-inhibitor, e.g.:

- enalapril, oral, 2.5 mg as a test dose
Increase according to response, to a maximum of 20 mg daily.
Monitor renal function.
Do not use if bilateral artery stenosis or in pregnancy.

3.6 RHEUMATIC HEART DISEASE

109.9

DESCRIPTION

These are chronic sequelae consisting of valvular damage, usually left heart valves, with progression and complications.

NON-DRUG TREATMENT

Acute stage: bed rest and supportive care.

Patient education.

Intensive health education for prevention of sore throats.

DRUG TREATMENT**ACUTE RHEUMATIC FEVER**

For eradication of streptococci in throat:

- benzathine benzylpenicillin (depot formulation), IM, 1.2 million units one dose
OR
phenoxymethylpenicillin, oral, 500 mg 12 hourly for 10 days

Penicillin allergy:

- erythromycin, oral, 250 mg 6 hourly for 10 days

PREVENTION OF RECURRENT RHEUMATIC FEVER

All patients with confirmed rheumatic fever and **no** rheumatic valvular disease – treat until 21 years of age.

All patients with confirmed rheumatic fever **and** rheumatic valvular disease – treat until 35 years of age.



CHAPTER 3

CARDIOVASCULAR SYSTEM

- benzathine benzylpenicillin (depot formulation), IM, 1.2 million units every 21–28 days (3–4) weeks
OR
phenoxymethylpenicillin, oral, 250 mg 12 hourly

Penicillin allergy:

- erythromycin, oral, 250 mg 12 hourly

PROPHYLAXIS FOR INFECTIVE ENDOCARDITIS

See Section 3.4: Infective Endocarditis

REFERRAL

- where surgery is contemplated
- management of intractable heart failure or other non-responding complications
- pregnancy

3.7 VENOUS THROMBO-EMBOLISM

182

DESCRIPTION

Formation and consequences of thrombi in the venous system.

Classical factors are stasis, endothelial damage and hypercoagulability, which result in local and distant complications, e.g. pulmonary embolism.

NON-DRUG TREATMENT

Advice on prophylaxis should be emphasised.

Eliminate all predisposing factors.

Prevent deep vein thrombosis.

In pulmonary embolism, cardiovascular resuscitation may be necessary and possibly surgery undertaken for intractable disease.

Note:

Distal venous thrombosis in the lower limbs, i.e. involving tibial veins only, need not be treated with anticoagulants. Monitor patients with repeat ultrasound if anticoagulants are not used. Ultrasonography should be repeated after a week but may be omitted if D-dimer negative.

DRUG TREATMENT

ACUTE TREATMENT

Thrombolytic therapy is indicated only in patients with angiographically confirmed early pulmonary embolism where haemodynamic stability cannot be achieved. Heparin initially, plus simultaneous warfarin. After 4–6 days, heparin is usually stopped and oral warfarin continued, depending on a therapeutic INR value being reached.

For proximal venous thrombosis and/or pulmonary embolism:

- heparin, IV, 5 000 units as a bolus, followed with IV infusion of 30 000–35 000 units/day

Control dose with APTT to keep it 1.5–2.5 times normal.

OR

Low molecular weight heparin (LMWH), e.g.:

enoxaparin, SC, 1 mg/kg 12 hourly, for 5–10 days

Round off the dose to the nearest 20 mg.

PLUS/FOLLOW WITH

- warfarin, oral, 5 mg/day
Control with INR to keep within therapeutic range.
Continue warfarin for 3–6 months if there was a transient precipitating cause.
Continue life-long if there is a non-transient precipitating cause or if repeated episodes.
Contraindications for warfarin: first trimester and the last month of pregnancy.
In these instances, it should be replaced with heparin.

PROPHYLAXIS

Prophylaxis depends on clinical circumstances.

Short term prophylaxis is indicated in high risk hospitalised patients with, e.g.:

- | | |
|---|--|
| ○ age > 60 years | ○ active cancer |
| ○ obesity | ○ acute ischaemic stroke |
| ○ congestive heart failure | ○ inflammatory bowel disease |
| ○ chronic lung disease | ○ acute MI |
| ○ varicose veins | ○ nephrotic syndrome |
| ○ immobility/paralysis | ○ central venous catheter |
| ○ prior venous thrombo-embolism | ○ oestrogen therapy |
| ○ thrombophilia (inherited or acquired) | ○ prior ischaemic stroke with residual paresis |
- heparin, SC, 5 000 units 8–12 hourly
Relative/absolute contraindications to prophylactic heparin:

○ active bleeding	○ uncontrolled hypertension
○ significant renal insufficiency	○ coagulopathy
○ heparin-induced thrombocytopenia	
○ recent intraocular or intracranial surgery	
○ lumbar puncture or epidural anesthesia within 12 hours	

REFERRAL

- complicated cases



CHAPTER 4 DERMATOLOGY

Extemporaneous compounding of some of the preparations listed should only take place at institutions where the competencies and equipment are available.

4.1 ACNE

L70

DESCRIPTION

Acne is an inflammatory condition of the hair follicle. Blockage of the follicle leads to comedone formation:

- open comedones – black heads
- closed comedones – white heads.

Secondary changes lead to scarring and inflammation:

- pustules
- papules
- nodules
- cysts and sinuses.

All forms of acne can cause scars.

Post inflammatory hyperpigmentation may be disfiguring, especially in pigmented skin.

This will gradually fade once the acne is controlled.

Response to treatment may be slow and treatment may need to be continued for months to years.

NON-DRUG TREATMENT

Regular normal gentle cleansing with soap and water is usually adequate for skin hygiene in patients with acne.

Avoid greasy or oily topical products such as moisturisers that block the hair follicle openings.

Diet plays no role in acne.

DRUG TREATMENT

- benzoyl peroxide 5%, topical, apply to affected areas as needed

AND/OR

For inflammatory acne:

- doxycycline, oral, 100 mg daily, for at least 3 months, after which review patient

Doxycycline impairs the efficacy of oral contraceptives.
Additional non-oestrogen measures may have to be used.

Topical retinoids

Indicated in non-inflammatory acne and where benzoyl peroxide is ineffective.

The main action is to control comedone formation.

Introduce gradually as nighttime applications to limit skin irritant effects, which are worse if used during day (UVL aggravation).

Topical retinoids should not be used in pregnant women.

- tretinoin gel/cream, topical. Specialist initiated.

REFERRAL

- severe and recalcitrant acne should be referred to a dermatologist

4.2 CELLULITIS AND ERYSIPELAS

L03.9

DESCRIPTION

Skin and subcutaneous infections with pain, swelling and erythema. Regional lymphadenitis may be present. Erysipelas has a raised demarcated border, whilst the border is indistinct in cellulitis.

NON-DRUG TREATMENT

Elevate the affected limb to reduce swelling.

DRUG TREATMENT

For pain:

- ibuprofen, oral, 400–800 mg 8 hourly
- OR**
- paracetamol, oral, 1 g 6 hourly when needed

Antibiotic therapy

If intravenous antibiotics are given initially patients should be switched to oral agents as soon as there is clinical improvement.

Antibiotics should be given until infection is cleared, usually for 7–10 days.

Note:

Patients with necrotising fasciitis require broad-spectrum antibiotics, as these infections are often polymicrobial.

- flucloxacillin, oral, 500 mg 6 hourly

OR

In severely ill patients:

- cloxacillin, IV, 1 g 6 hourly

Penicillin allergy:

- clindamycin, oral, 300 mg 8 hourly

OR

clindamycin, IV, 600 mg 8 hourly

RECURRENT CELLULITIS

Investigate and treat any underlying cause for the infection such as lymphoedema eczema, leg ulcer and stasis.

Prophylaxis

Frequent recurrent cellulitis in patients with lymphoedema:

- benzathine benzylpenicillin (depot formulation), IM, 1.2 million units every 28 days

Penicillin allergy:

- erythromycin, oral, 250 mg 12 hourly

URGENT REFERRAL

- for debridement if necrotising fasciitis is suspected, i.e. gangrene, gas in the tissues or haemorrhagic bullae

REFERRAL

- to surgeon for non-response

4.3 IMPETIGO

L01.0

DESCRIPTION

Superficial skin infection, starting as vesicles with inflammatory halo. Later a characteristic honey-coloured crust on erythematous base develops. Heals without scarring. Usually caused by group A streptococci, but staphylococcal superinfection is common. Post-streptococcal glomerulonephritis is a complication.

NON-DRUG TREATMENT

Good personal and household hygiene to avoid spreading the infection and to reduce carriage of organisms.

DRUG TREATMENT

Daily cleansing with an antiseptic, e.g.:

- potassium permanganate 1:10 000 aqueous solution

Antibiotic therapy

- flucloxacillin, oral, 250 mg 6 hourly for 5–10 days

Penicillin allergy:

- erythromycin, oral, 500 mg 6 hourly for 5–10 days

4.4 ABSCESSSES (FURUNCLES, BOILS AND CARBUNCLES)

L02.9

DESCRIPTION

Localised bacterial skin infection of hair follicles or dermis, usually with *S. aureus*.

The surrounding skin becomes:

- swollen
- hot
- red
- tender to touch



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DERMATOLOGY

Note:

Boils in diabetic or immunocompromised patients require careful management.

NON-DRUG TREATMENT

Encourage general hygiene.

Apply local hot compresses three times daily until the boil/abscess starts draining.

Drainage of abscess is treatment of choice, surgical incision being performed only after the lesion is mature.

DRUG TREATMENT

Antibiotic therapy

Is only indicated if there are systemic features of infection or marked surrounding cellulitis.

- cloxacillin, IV, 1 g 6 hourly

Follow with:

- flucloxacillin, oral, 500 mg 6 hourly

Penicillin allergy:

- clindamycin, oral, 300 mg 8 hourly for 5 days

4.4.1 BOILS, RECURRENT

DESCRIPTION

Usually due to staphylococcal carrier state.

Investigate for diabetes mellitus.

NON-DRUG TREATMENT

Incision and drainage is the mainstay of treatment.

Good personal hygiene.

DRUG TREATMENT

Scalp and body washes with antiseptics, e.g.:

- povidone iodine, topical for 1 week

4.5 ECZEMA

L30.9

DESCRIPTION

Eczema is an inflammatory skin condition recognised by vesicles, weeping and crusting in the acute phase and thickened, scaly skin with increased skin markings known as lichenification in the chronic phase. Eczema can be allergic or non-allergic.

NON-DRUG TREATMENT

Avoid exposure to trigger or precipitating factors, where applicable.



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DERMATOLOGY

Good personal hygiene with regular washing to remove crusts and accretions and avoid secondary infection.

Avoid irritants such as strong detergents, antiseptics, foam baths, woollen and synthetic clothing and pets.

Respect patient preference for cream or ointment topical treatment.

Wet wraps help control eczema and pruritus but do not use for infected eczema.

Diet modification has no role in atopic eczema treatment unless double blind challenge testing proves sensitivity.

DRUG TREATMENT

MILD CASES - MILD DISEASE INVOLVING LIMITED AREAS

To relieve skin dryness:

- aqueous cream, topical, applied daily

To control eczema:

- betamethasone 0.1%, topical, applied daily
Wean to emollients, e.g. emulsifying ointment as tolerated.

Maintenance therapy, once eczema is controlled:

- aqueous cream or emulsifying ointment, topical, applied daily

MODERATE TO SEVERE CASES

To control eczema:

- betamethasone 0.1%, topical, applied daily for 5–7 days
Avoid facial areas, especially around the eyes.

Thereafter:

- hydrocortisone 1%, topical, applied daily as tolerated for a further 5–7 days
Wean to emollients, e.g. emulsifying ointment as tolerated.

INFECTED ECZEMA

This is usually due to staphylococcus.

Antiseptic cream, e.g.:

- povidone iodine 5%, topical, applied for 24 hours
Continue with topical steroids thereafter.

Antibiotic therapy

- flucloxacillin, oral, 500 mg 6 hourly for 5 days

For penicillin allergy:

- clindamycin, oral, 300 mg 8 hourly



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DERMATOLOGY

For relief of itch if there is an urticarial component:

- chlorpheniramine, oral, 4 mg 3 times daily, as needed
OR
cetirizine, oral, 10 mg daily
OR
promethazine, oral, 25 mg at night as needed in severe cases

REFERRAL

- severe, non-responsive or complicated cases

4.6 ERYTHEMA MULTIFORME, STEVENS JOHNSON SYNDROME, TOXIC EPIDERMAL NECROLYSIS

L51

DESCRIPTION

A continuum ranging from mild Erythema Multiforme (EM), to Stevens Johnson Syndrome (SJS) and then to the most severe and potentially lethal Toxic Epidermal Necrolysis (TEN).

Drugs (EM, SJS, TEN) and herpes simplex or mycoplasma infections (EM) are the main causes of these rashes.

Stop all medicines, including complimentary, alternative, hormonal contraceptives and self medication.

NON-DRUG TREATMENT

Supportive and symptomatic management as for burn cases.

Identify and remove the offending agent.

Monitor vital organ function in severe cases, especially liver function tests.

All patients require a medical alert disc.

Exclude systemic involvement, e.g. liver, kidney, bone marrow and lung.

Skin hygiene; daily cleansing and bland, non-adherent dressings as needed.

Regular supervised oral, genital and eye care to prevent synechia and scarring.

DRUG TREATMENT

PRINCIPLES OF MANAGEMENT

Manage as for Burns.

See Section 20.2.1: Burns.

The foundation of management is supportive, good nursing and the prevention of infection.

Fluids

Replace fluids.

Oral is preferred but intravenous fluid therapy may be required in significant dehydration.

Corticosteroids

There is no convincing evidence that steroids are of benefit and in TEN steroids may even cause harm.

The use of systemic corticosteroids is therefore not recommended.



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Antibiotic therapy

Systemic antibiotics may be indicated, depending on results of culture grown from skin swabs, blood and urine.

Analgesia

Appropriate and adequate analgesia for the severe pain associated with dressing changes.

REFERRAL

- all cases with systemic features, mucosal involvement or extensive cutaneous involvement

4.7 LEG ULCERS, COMPLICATED

L97

DESCRIPTION

A chronic relapsing disorder of the lower limbs, which usually occurs in middle-aged women. It has many causes and is often associated with lipodermatosclerosis (bound-down, fibrosed skin) and eczema. It is mainly associated with vascular, predominantly venous insufficiency and immobility. It is also associated with neuropathy and occasionally with infections, neoplasia, trauma or other rare conditions.

NON-DRUG TREATMENT

The aim of management should be to:

- treat underlying conditions, e.g. heart failure, diabetes mellitus and stasis
- limit the extent of damage
- encourage rapid healing to minimise scarring and fibrosis
- prevent recurrences

Avoid all topical irritants and allergens, e.g. lanolin, neomycin, bacitracin, parabens, povidone-iodine, fusidic acid, clioquinol, antihistamine creams, colophony, etc.

If the ulcer is oedema/stasis related, rest the leg in an elevated position.

In venous insufficiency, compression (bandages or stockings) is essential to achieve and maintain healing provided the arterial supply is normal.

In patients with arterial insufficiency, avoid pressure on bony prominences and the toes.

Stress meticulous foot care and avoidance of minor trauma.

Walking and exercises are recommended.

Encourage patients with neuropathy not to walk barefoot, to check their shoes for foreign objects, examine their feet daily for trauma and to test bath water before bathing to prevent getting burnt.

Avoid excessive local heat.

Indications for surgical procedures:

- slough removal
- surgery for varicose veins
- arterial insufficiency
- skin grafting.



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DERMATOLOGY

DRUG TREATMENT

Antibiotic therapy

Systemic antibiotics are seldom required for ulcers, and should be considered **only if there is surrounding cellulitis or features of sepsis**. These infections are typically polymicrobial and broad-spectrum antibiotics are recommended.

- amoxicillin/clavulanic acid, oral, 625 mg 8 hourly for 10 days

Local wound care

Topical cleansing

Use bland, non-toxic products to clean the ulcer and surrounding skin.

For clean uninfected wounds:

- sodium chloride 0.9% or sterile water

For exudating, infected wounds:

- potassium permanganate 1:10 000 aqueous solution or povidone-iodine

For wounds complicated by pseudomonas species:

- acetic acid 0.5%

Dressings

These are individualised and selected relative to the type of ulcer and the presence and degree of infection, slough, necrosis, exudate and granulation tissue present. Non-stick hydrocolloid dressings ensuring a moist wound environment free of products toxic to cells, which promote debridement and healing should be used for uninfected ulcers.

REFERRAL

- recalcitrant cases

4.8 PSORIASIS

L40.9

DESCRIPTION

This is an inflammatory condition of the skin and joints of unknown aetiology. Scaly red itchy papules and plaques over extensor surfaces and in the scalp are common. The nails and skin folds are often involved. In exceptional cases, it is localised to palms and soles and pustular skin lesions are seen especially following rapid treatment withdrawal, e.g. steroids or systemic agents.

NON-DRUG TREATMENT

Counselling regarding precipitating factors and chronicity.
Encourage sun exposure as tolerated.



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DRUG TREATMENT

LOCAL PLAQUES

- salicylic acid 2–10% in white soft paraffin, topical, applied three times daily until scale is removed

Then:

- liquor picis carbonis 5–10%, topical

OR

corticosteroid, topical

OR

modified Adamson's/Brown ointment, topical

- dithranol 0.1–1% in soft paraffin, topical, applied daily for 10–60 minutes followed by careful removal of the ointment and showering or bathing. Specialist initiated. Occasionally up to 3% may be used.

Use only after supervised demonstration of its application and removal with detergent.

This is an irritant - avoid contact with eyes, tender areas or open wounds.

Clothes, furniture and household surfaces are easily and permanently stained by dithranol.

SEVERE LOCALISED OR GENERALISED PUSTULAR PSORIASIS

To be prescribed by a dermatologist only:

- corticosteroids, topical or oral
- acitretin
- methotrexate

SEVERE PSORIASIS

To be prescribed by a dermatologist only:

- calcipotriol
- UVB
- PUVA
- azathioprine
- acitretin
- hydroxycarbamide
- methotrexate

SCALP PSORIASIS

- betamethasone 0.05% lotion, topical, applied once daily

REFERRAL

- no response to treatment
- severe complications
- uncertain diagnosis

4.9 URTICARIA

L50.9

DESCRIPTION

A transient itchy inflammatory skin and mucosal condition recognised by a wheal and flare reaction for which there are many causes. In most chronic cases the precipitant



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for the urticaria will never be found. Lesions due to insect bite are often grouped, show a central bite mark and are on exposed areas of the body. They are often associated with secondary features such as excoriations, vesicles, pigmentary changes and infection.

NON-DRUG TREATMENT

A good history is key to identifying triggers of urticaria that should be avoided. Limit exposure to triggers such as non-immune mast cell degranulators, which aggravate and prolong urticaria, e.g. codeine, NSAIDs, salicylates, etc.

DRUG TREATMENT

Antihistamines

Regular use is recommended until the urticaria is quiescent. If one antihistamine does not provide relief, change to, or add another class of antihistamine. For chronic urticaria less sedating antihistamines are preferable.

- chlorpheniramine, oral, 4 mg 3 times daily, as needed
OR
cetirizine, oral, 10 mg daily, preferably in the evening

The use of oral corticosteroids should be avoided.

PAPULAR URTICARIA

For relief of itch and sedation:

- chlorpheniramine, oral, 4 mg 3 times daily, as needed
OR
cetirizine, oral, 10 mg daily
OR
promethazine, oral, 25 mg at night as needed in severe cases

REFERRAL

- recalcitrant cases

4.10 FUNGAL INFECTIONS

B35

DESCRIPTION

The skin may be infected by yeasts or fungi and the clinical presentation varies with organism, body site infected and the body's response to the infection. Most infections are due to anthropomorphic species that infect humans primarily. Yeasts such as *Candida* spp (intertrigo, thrush) and *Pityrosporum* spp (tinea/pityriasis vesicolor, folliculitis) are common. Dermatophyte (tinea) infections are common and do not necessarily imply underlying disease.



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Deep fungal infections (mycetomas, sporotrichosis, blastomycosis) occur rarely. Systemic fungal infections (histoplasmosis, cryptococcosis) are increasingly seen in the immunocompromised and need systemic therapy.

NON-DRUG TREATMENT

Manage predisposing factors, i.e. occlusion, maceration and underlying conditions such as diabetes, eczema, immunocompromise, etc.

Advise patient regarding spreading infection and exposure in communal, shared facilities (dermatophytes).

DRUG TREATMENT

CANDIDA

Imidazole, e.g.:

- clotrimazole, topical, applied twice daily until clear of disease

PITYROSPORUM

- selenium sulphide 2% suspension, topical, applied once weekly to all hair bearing surfaces Allow to dry and leave for 24 hours before rinsing off. Repeat for 3 weeks.

DERMATOPHYTES

Imidazole, e.g.:

- clotrimazole, topical, applied twice daily until clear of disease

For mild cases:

- benzoic acid 6%/salicylic acid 3% (Whitfield's ointment), topical, applied twice daily

Systemic antifungal therapy

Duration of therapy:

- 4 weeks: only for extensive, incapacitating and recurrent skin infections
- 8 weeks: for scalp and hair infections
- 3–6 months: for finger and toe nail infections

Big toe nail infections do not respond to therapy.

Topical treatment is generally ineffective for hair and nail infections.

Recurrent infections are not uncommon if repeat exposure is not prevented.

- griseofulvin, oral, 10 mg/kg daily

REFERRAL

- recalcitrant and non-responding infections
- systemic infections



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4.11 VIRAL INFECTIONS

4.11.1 WARTS

DESCRIPTION

Superficial muco-cutaneous infection caused by the human papilloma virus.

NON-DRUG TREATMENT

Cryotherapy.

Patients with anogenital warts should be checked for the presence of other STIs.

DRUG TREATMENT

Cutaneous warts

Treatment seldom indicated.

Anogenital warts

- podophyllin 20% in Tinct. Benz. Co., topical
Apply to affected areas and leave on for a few hours.
Wash off with water and then repeat once a week until lesions disappear.

4.11.2 SHINGLES (HERPES ZOSTER)

See Section 9.11: Zoster (shingles)

CHAPTER 5 GYNAECOLOGY

5.1 DYSMENORRHOEA

N94.4

NON-DRUG TREATMENT

Surgical treatment for persistent pain despite medical treatment: laparoscopy, diagnostic and therapeutic in the younger patient.

DRUG TREATMENT

Symptomatic relief:

- paracetamol, oral, 1 g up to 4 times daily
- OR**
- ibuprofen, oral, 400 mg 3 times daily

For severe pain:

ADD

- combined oral contraceptives

REFERRAL

- young women with pain not responding to conventional treatment
- older women with persistent pain

5.2 GENITAL PROLAPSE AND URINARY INCONTINENCE

N81

Note:

All patients should be referred for specialist care.

Baseline investigations can, however, be done at lower level.

NON-DRUG TREATMENT

Surgical procedures as dictated by the diagnosis at specialist care.

For stress incontinence – pelvic floor exercises.

DRUG TREATMENT

Infections, and underlying conditions, as appropriate and as dictated by the diagnosis.

For detrusor hyperactivity/instability as demonstrated on urodynamic studies:

- amitriptyline, oral, 10 mg at night as an initial dose
Increase by 10–25 mg 1–2 times daily.
Maximum dose: 75 mg daily.

REFERRAL

- all patients with prolapse
- patients not responding to therapy
- incontinence:
 - stress incontinence as surgical repair will be likely
 - total incontinence as fistulation has to be excluded
 - urge incontinence resistant to drug treatment after 3 months' duration as first line medical treatment then seems to be unsuccessful
 - mixed incontinence as seen with both stress as well as urge incontinence present as surgery will play a role

5.3 INFERTILITY

N97.9

NON-DRUG TREATMENT

Counselling.

Lifestyle modification, e.g. weight optimisation, smoking cessation and regular sexual intercourse.

Investigation of semen analysis and prolactin levels.

Laparoscopy and/or hysterosalpingography (Specialist supervision).

DRUG TREATMENT

Treat the underlying disease.

For induction of ovulation:

- clomifene, oral, 25–50 mg daily for 5 days on days 5–9 of the cycle. Specialist only.

Monitor the progress of ovulation.

For hyperprolactinaemia after further investigation:

- bromocriptine, oral, 2.5 mg at night. Specialist only.

5.4 MENOPAUSE AND PERIMENOPAUSAL SYNDROME

N95.9

NON-DRUG TREATMENT

Counselling.

DRUG TREATMENT**Hormone replacement therapy (HRT)**

This is not indicated in all postmenopausal women. Symptomatic menopausal women and those with osteoporosis risk factors will benefit most.

The benefits need to be weighed against evidence of potential harm, including the emergence of risks as therapy continues.

Note:

The most important contra-indication for HRT is a previous hormone dependent malignant tumor of breast or endometrium.

Relative contraindications to HRT include:

- coronary heart disease
- stroke
- breast cancer
- previous thrombo-embolism.

In all these instances consult a specialist.

When considering use of HRT in women without menopausal symptoms, or for long-term use, alternative treatment should be considered.

INTACT UTERUS (NO HYSTERECTOMY)

HRT can be offered as sequentially opposed oestrogens or continuously opposed oestrogens. Continuously opposed oestrogen has the advantage of less breakthrough bleeding. Treatment should be planned for 5 years but reviewed annually.

Sequentially opposed:

- conjugated oestrogens, oral, 0.625 mg for 11 days followed by the addition of medrogestone 5 mg for 10 days

OR

Continuous opposed:

- conjugated oestrogens, oral, 0.625 mg plus medrogestone 2.5 mg daily

Any unexpected vaginal bleeding is an indication for excluding endometrial carcinoma as with other cases of postmenopausal bleeding. The use of transvaginal ultrasound to measure endometrial thickness plus the taking of an endometrial biopsy are recommended.

UTERUS ABSENT (POST HYSTERECTOMY)

HRT can be offered as oestrogen only. Oestrogen supplementation to prevent postmenopausal osteoporosis requires long-term treatment.

- estradiol valerate, oral, 1–2 mg daily

OR

conjugated oestrogens, oral, 0.3 mg daily or 0.625 mg on alternative days up to 1.25 mg daily

REFERRAL

- premature menopause, i.e. < 40 years of age
- severe complications, particularly severe osteoporosis
- management difficulties, e.g. where a contra-indication to oestrogen replacement therapy exists
- post menopausal bleeding

5.5 MISCARRIAGE

O00–O08

It is recommended that Manual Vacuum Aspiration be used in place of curettage where evacuation of the uterus is suggested, in cases of uncomplicated incomplete miscarriage. The equipment to do this should be available at all hospitals where gynaecological procedures are done.

5.5.1 BLIGHTED OVUM/ANEMBRYONIC PREGNANCY

O02.0

NON-DRUG TREATMENT

Counselling.
Evacuation of the uterus.

DRUG TREATMENT

To ripen the cervix:

- misoprostol, oral/vaginal, 400 mcg as a single dose

5.5.2 RETAINED/MISSED MISCARRIAGE ALSO UNCOMPLICATED INCOMPLETE MISCARRIAGE IN THE FIRST TRIMESTER

O02.1

NON-DRUG TREATMENT

Counselling.
Evacuation of the uterus after ripening the cervix.

DRUG TREATMENT

To ripen the cervix:

- misoprostol, oral/vaginal, 400 mcg as a single dose

5.5.3 MIDTRIMESTER MISCARRIAGE (FROM 13–22 WEEKS GESTATION)

O03.9

NON-DRUG TREATMENT

Counselling.
Evacuation of the uterus after the fetus has been expelled.

DRUG TREATMENT

For augmentation:

- misoprostol, vaginal, 400 mcg immediately

Follow with:

- misoprostol, oral, 200 mcg every 2 hours until expulsion of the products of conception

Warning

Uterine rupture may occur in women with previous Caesarean sections.
Caution for this group and those of high parity: use lower the dose of misoprostol or alternative methods such as extra-amniotic saline infusion without misoprostol.

If misoprostol is not available (less effective):

- oxytocin, IV, 20 milliunits/minute
Reduce rate if strong contractions are experienced.
Dilute 20 units in 1 L sodium chloride 0.9%, i.e. 20 milliunits/mL solution.

Note:

Check serum sodium if used for more than 24 hours because of the danger of dilutional hyponatraemia.

Analgesia for all patients undergoing suction termination, e.g.:

- morphine, IV, 10 mg

If mother is Rh-negative:

- anti-D immunoglobulin, IM, 100 mcg as a single dose

REFERRAL

- uterine congenital abnormalities
- suspected cervical incompetence
- recurrent midtrimester miscarriages (3 consecutive spontaneous miscarriages) with minimal pain and bleeding
- congenital anomalies of the fetus
- immunological problems
- diabetes mellitus
- parental genetic defects and SLE or other causes of autoimmune disease

5.5.4 SEPTIC MISCARRIAGE

NON-DRUG TREATMENT

Counselling.

Evacuation of uterus and surgical management of complications.

DRUG TREATMENT

- oxytocin, IV, 20 milliunits/minute
Reduce rate if strong contractions are experienced.
Dilute 20 units in 1 L sodium chloride 0.9%, i.e. 20 milliunits/mL solution.

Note:

Check serum sodium if used for more than 24 hours because of the danger of dilutional hyponatraemia.

Antibiotic therapy

- ampicillin, IV, 1 g immediately, followed by 1 g 6 hourly

PLUS

- gentamicin, IV, 5 mg/kg daily

PLUS

- metronidazole, IV, 500 mg 8 hourly

Change to oral treatment after improvement:

- amoxicillin/clavulanic acid, oral, 625 mg 8 hourly for 5 days

PLUS

- doxycycline oral, 100 mg 12 hourly for 10 days

Note:

The addition of metronidazole to amoxicillin/clavulanic acid is unnecessary as this has excellent anaerobic cover.

Penicillin allergy:

- clindamycin, IV, 600 mg 8 hourly

PLUS

- gentamicin, IV, 5 mg/kg daily

Change to oral treatment after improvement:

- clindamycin, oral, 450 mg 8 hourly for 5 days

PLUS

- doxycycline, oral, 100 mg 12 hourly for 10 days

PLUS

- ciprofloxacin, oral, 500 mg 12 hourly for 5 days

If patient has severe sepsis, consideration should be given for urgent hysterectomy.

REFERRAL

- evidence of trauma
- no response to treatment

5.5.5 TROPHOBLASTIC NEOPLASIA ('Hydatidiform mole')

O01

Misoprostol is not indicated in this condition because of risk of dissemination. Send products of conception for histology.

REFERRAL

- all

5.6 PELVIC INFLAMMATORY DISEASE (PID)

N73.9

DESCRIPTION

PID includes salpingitis with or without oöphoritis and, as precise clinical localisation is often difficult, denotes the spectrum of conditions resulting from infection of the female genital tract.

Sequelae are:

- recurrent infections if inadequately treated
- infertility
- increased probability of ectopic pregnancy
- chronic pain, i.e. dyspareunia, dysmenorrhoea, and low back pain

Early death may result from sepsis, late death may follow a ruptured ectopic pregnancy. Chronic PID may follow if the abnormalities persist with hydro/pyosalpinx, adhesions to bowel and to the uterus.

Stage	Manifestations	Treatment objectives
Stage I Acute/uncomplicated salpingitis	<ul style="list-style-type: none"> ○ local adnexal tenderness ○ no peritoneal tenderness 	<ul style="list-style-type: none"> ○ cure ○ prevent spread ○ prevent HIV
Stage II Salpingitis + peritonitis	<ul style="list-style-type: none"> ○ local adnexal tenderness ○ peritoneal irritability, e.g. rebound, guarding, etc. 	<ul style="list-style-type: none"> ○ cure ○ preserve fertility ○ prevent complications
Stage III Tubal occlusion + pus + distention	<ul style="list-style-type: none"> ○ as stage II PLUS ○ palpable mass May need ultrasound to detect if there is much tenderness. ○ mass larger than pyosalpinx, posterior to uterus, i.e. Douglas pouch ○ infertility may result 	<ul style="list-style-type: none"> ○ maintain ovarian function ○ facilitate surgery
Stage IV Rupture to peritoneal cavity	<ul style="list-style-type: none"> ○ septicaemia ○ collapse 	<ul style="list-style-type: none"> ○ preservation of life ○ rapid surgical exploratory laparotomy

NON-DRUG TREATMENT

All patients with stage II–IV must be hospitalised for parenteral antibiotic therapy. Frequent monitoring of general abdominal and pelvic signs is essential.

Note:

Remove IUCDs.

Test and treat patient for syphilis and offer HIV testing.

Perform a pregnancy test as an ectopic pregnancy forms part of the differential diagnosis.

In stage III, surgery is indicated if:

- the diagnosis is uncertain
- rupture seems imminent
- there is no adequate response after 48 hours of appropriate therapy
- the patient deteriorates on treatment
- after 4–6 weeks there still is a large or symptomatic pelvic mass

DRUG TREATMENT**STAGE I**

- doxycycline, oral, 100 mg 12 hourly for 7 days

PLUS

- ciprofloxacin, oral, 500 mg immediately as a single dose

PLUS

- metronidazole, oral, 2 g immediately as a single dose

STAGE II–IV

- benzylpenicillin (Penicillin G), IV, 2 million units 6 hourly

PLUS

- gentamicin, IV, 5 mg/kg daily

PLUS

- metronidazole, oral, 400 mg 8 hourly

OR

- metronidazole, IV, 500 mg 8 hourly

PLUS

- doxycycline, oral, 100 mg 12 hourly for 14 days
Start as soon as patient is able to take oral medication.

Continue intravenous therapy until there is definite clinical improvement.

Thereafter, change to:

- amoxicillin/clavulanic acid, oral, 625 mg 8 hourly should be added to the doxycycline to complete 14 days therapy

Note:

The addition of metronidazole to amoxicillin/clavulanic acid is unnecessary as this has excellent anaerobic cover.

Penicillin allergy:

- clindamycin, IV, 900 mg 8 hourly

PLUS

- gentamicin, IV, 5 mg/kg daily

Continue intravenous therapy until there is definite clinical improvement.

Thereafter, change to:

- doxycycline, oral, 100 mg 12 hourly

PLUS

- metronidazole, oral, 400 mg 8 hourly for 14 days

REFERRAL

- stages III and IV should be managed in consultation with a gynaecologist

5.7 TERMINATION OF PREGNANCY (TOP)

O04

Gestational age is based on the estimated size of the uterus rather than dates.
Ultrasound examination is not essential.

**SUMMARY OF CHOICE OF TERMINATION OF PREGNANCY ACT
WOMEN ELIGIBLE**

Up to 12 weeks by dates: on request.

13–20 weeks by dates: If doctor satisfied that pregnancy was from rape or incest, or there is risk of fetal abnormality or risk to mother's physical or mental health or social or economic circumstances.

More than 20 weeks by dates: Doctor and second doctor or registered midwife is satisfied that there is danger to the mothers' life, severe fetal malformation or risk of fetal injury.

Venue

Facility designated by the Member of the Executive Council on provincial level.

PRACTITIONER

Up to 12 weeks by dates: doctor or midwife with appropriate training.

More than 12 weeks by dates: doctor responsible for decision and prescription of medication. Registered nurse/midwife may administer medication according to prescription.

Pre and post termination counselling is essential.

Consent of spouse/partner is not necessary.

Consent for TOP and related procedures e.g. laparotomy may be given by minors.

Minors are encouraged to consult parents or others but consent is not mandatory.

MENTALLY RETARDED/UNCONSCIOUS PATIENT

On request from spouse or guardian; doctor and second doctor or registered midwife must agree.

If indicated as for 13–20 weeks (above), spouse/guardian cannot prevent TOP by withholding consent.

5.7.1 GESTATION BY DATES, UP TO 12 WEEKS**NON-DRUG TREATMENT**

Counselling.

Outpatient procedure by nursing staff with specific training.

Manual vacuum aspiration of the uterus.

DRUG TREATMENT

If difficulty with cervical dilation is expected, e.g. if prostagandin preparation has not been used, a paracervical block may be considered.

- misoprostol, SL/PV, 400 mcg 2 hours before routine vacuum aspiration of the uterus

If woman commits to come back for follow-up, an alternative is medical abortion with a prostoglandin analogue, e.g.:

- misoprostol, SL/PV, 800 mcg daily for 2 doses, e.g.:
800 mcg PV on day 1. Supply 800 mcg for sublingual use at home on day 2 and review with ultrasound on day 3.

If does not abort completely, i.e. < 20% of cases, vacuum evacuation of the uterus on day 3.

Side effects: pain due to uterine contractions.

Bleeding may persist for up to 1 week.

Routine analgesia for vacuum aspiration.

If recovery facilities are not available:

- paracetamol, oral, 1 g 30 minutes before aspiration procedure

AND

- ibuprofen, oral, 800 mg 30 minutes before aspiration procedure

If recovery facilities are available:

- pethidine, IM, 100 mg 30 minutes before aspiration procedure

OR

morphine, IM, 10 mg 30 minutes before aspiration procedure

Continue oral analgesia above as required for 48 hours.

- paracetamol, oral, 1 g 6–8 hourly

AND

- ibuprofen, oral, 800 mg three times a day

5.7.2 GESTATION BY DATES, 13 TO 20 WEEKS

Inpatient care in facilities with 24-hour service and facilities for general anaesthesia.

NON-DRUG TREATMENT

Evacuation of the uterus, (preferably vacuum aspiration) if abortion is not complete.

DRUG TREATMENT

The dose of misoprostol decreases with increasing gestational age because of the risk of uterine rupture.

- misoprostol, SL/PV, 200–400 mcg 12 hourly until expulsion

If no response after 24 hours, consider adding mechanical cervical ripening.

Pass a Foley catheter with 30 mL bulb through cervix with sterile technique.

Inflate bulb with 50 mL water or sodium chloride 0.9%.

Tape catheter to thigh with light traction.

Attach sodium chloride 0.9% 1 L with giving set to catheter.

Infuse sodium chloride 0.9% at 50 mL/ hour.

After cervical dilation or bleeding has commenced:

- oxytocin, IV, 20 units in 1 L sodium chloride 0.9%
Infuse at a rate of 125 mL/hour.

Note:

Check serum sodium if used for more than 24 hours because of the danger of dilutional hyponatraemia.

Most women deliver in 48 hours, some need manual removal of placenta.

Side effects: heavy bleeding and pain due to uterine contractions.

Warning

Uterine rupture may occur in women with previous Caesarean sections.
Caution for this group and those of high parity: use lower the dose of misoprostol or alternative methods such as extra-amniotic saline infusion without misoprostol.

Analgesia

- pethidine, IM, 100 mg 4 hourly as needed

OR

morphine, IM, 10 mg 4 hourly as needed

Avoid NSAIDs.

If Rh-negative:

- anti-D immunoglobulin, IM, 100 mcg as a single dose

REFERRAL

- complicating medical conditions, e.g. cardiac failure, etc.
- failed procedure
- suspected ectopic pregnancy

5.8 UTERINE BLEEDING, ABNORMAL

N91–N93

NON-DRUG TREATMENT

Surgical procedures as dictated by the diagnosis.

Perform endometrial ultrasound and sampling in women over 45 years of age.

Actively exclude organic causes for abnormal uterine bleeding.

DRUG TREATMENT

Dysfunctional uterine bleeding implies no organic cause present.

ARREST OF ACUTE HAEMORRHAGE

High dose combined oral contraceptive:

- levonorgestrel/ethinyl oestradiol 250/50 mcg, oral, 1 tablet every 6 hours for 2–3 days, thereafter 1 tablet daily for three months
Placebos in the pack should be taken to regularise the menstrual cycle after the bleeding has stopped.

OR

For excessively heavy anovulatory dysfunctional bleeding:

Progestogen

- norethisterone, oral, 5 mg 4 hourly for 24–48 hours

OR

medroxyprogesterone acetate, oral, 5 mg three times daily for 24–48 hours

Thereafter follow guidelines for restoring cyclicity.

OR

Oestrogen

- conjugated oestrogens, IM/IV, 25 mg
In cases of severe haemorrhage, repeat once if necessary after 6–12 hours.

- tranexamic acid, oral, 1 g 4 times daily on days 1–4 of the cycle. Specialist initiated. After bleeding has stopped, continue with a combined contraceptive tablet 3 times daily for 7 days and then 1 tablet once daily for 3 months.

FOR RESTORING CYCLICITY

For women in the reproductive years:

- combined oral contraceptive, oral, 1 tablet daily for 3–6 months

OR

As alternative to combined oral contraceptives:

Progesterone only:

- medroxyprogesterone acetate, oral, 10 mg 3 times daily for 10 days, starting on day 14 of the cycle

OR

norethisterone, oral, 5 mg 3 times daily for 10 days, starting on day 14 of the cycle

Repeat every 3 weeks for restoring cyclicity, use for 3 months.

For perimenopausal women, if uterus present, HRT:

- conjugated oestrogens, oral, 0.625 mg daily for 11 days followed by the addition of medrogestone 5 mg for 10 days
Use for 3–6 months.

For dysmenorrhoea and abnormal bleeding:

ADD

- ibuprofen, oral, 200 mg 3 times daily for 2–3 days



CHAPTER 6 OBSTETRICS

Note:

For medical complications of pregnancy, refer to the relevant chapters. Only common conditions specific to pregnancy, or requiring special management in pregnancy are included in this chapter.

6.1 ANAEMIA IN PREGNANCY

D64.9

DESCRIPTION

Haemoglobin (Hb) of less than 10 g/dL.

NON-DRUG TREATMENT

Lifestyle adjustment to prevent nutritional deficiency.
Avoid 'pica', i.e. eating sand.

DRUG TREATMENT

PROPHYLAXIS

- ferrous sulphate compound, oral, 170 mg daily

PLUS

- folic acid, oral, 5 mg daily

Iron and folic acid supplementation should be continued during lactation.
Other causes of anaemia should be treated according to the diagnosis.

FOLIC ACID DEFICIENCY

- folic acid, oral, 5 mg daily

Treat until Hb is normal. Hb is expected to rise by at least 0.2 g per week if diagnosis is correct.

Associated vitamin deficiencies should be identified and treated accordingly.

IRON DEFICIENCY

- ferrous sulphate compound, oral, 170 mg 2–3 times daily
Continue for 3 months after the Hb reaches normal to replenish iron stores.

REFERRAL

- symptomatic anaemia
- no response to management
- anaemia due to causes other than haematinic deficiency

6.2 DEHYDRATION/KETOSIS

DESCRIPTION

Subclinical dehydration is often missed in labour.

NON-DRUG TREATMENT

Encourage adequate oral fluid intake.

DRUG TREATMENT**Mild dehydration**

Give oral fluids.

Moderate/severe dehydration

Intravenous fluids, 250 mL/hour.

Re-evaluate hydration hourly.

Intravenous dextrose in excess of 6 g/hour may cause fetal hyperinsulinism and hyponatraemia. Limit dextrose given IV as follows:

- up to 125 mL/hour: dextrose 5%
- any additional fluid: sodium chloride 0.9%

6.3 DIABETES MELLITUS AND GLUCOSE INTOLERANCE IN PREGNANCY

O24

Ideally this should be managed by a specialist.

DESCRIPTION**Diabetes mellitus in pregnancy**

Fasting blood glucose: ≥ 6.9 or ≥ 11 mmol/L 2 hours after 75 mg glucose load.

Impaired glucose tolerance

Blood glucose 7.8–11 mmol/L 2 hours after 75 g glucose load.

NON-DRUG TREATMENT**Diet**

Diabetic diet of not less than 1 800 Kcal unless grossly obese.

- protein 15%
- fat 25%
- high fibre carbohydrate 60%.

Eat 3 meals and 3–4 snacks/day.

Elective delivery at about 38 weeks' gestation.

DRUG TREATMENT

Insulin requirements may increase with increasing gestation and later readmission may be necessary.

Six-point blood sugar profiles, i.e. pre- and 1–2 hour post-breakfast, lunch and supper.

Normal Profiles

Preprandial levels < 5.0 mmol/L and postprandial < 7.5 mmol/L – repeat the profiles 2-weekly until 34 weeks and then weekly until delivery.

Abnormal Profiles

Start insulin.

Diabetic women should be admitted initially for good control.

When adequate glucose monitoring can be maintained during pregnancy, e.g. home blood glucose monitoring with consultation or long-term admission, the following levels should be aimed at:

preprandial levels:	3.5–5.5 mmol/L
2 hour postprandial:	≤ 7 mmol/L

When adequate glucose monitoring cannot be maintained, e.g. 24-hour profile in hospital every 1–2 weeks, and the risk of hypoglycaemia is unpredictable, these targets may need to be less stringent, e.g.:

2 hour postprandial:	7.8 mmol/L
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Preferable regimen

Use intermediate acting insulin between 21:00 and 22:00 to maintain preprandial levels and short acting insulin with all 3 meals to maintain the postprandial levels.

Starting dose may be based on previous insulin requirements if known, or empiric starting dose:

To maintain preprandial levels:

- intermediate acting insulin, 10 units

To maintain the postprandial levels:

- insulin, soluble, short acting, 5 units with all 3 meals

Adjust insulin dosage daily according to blood glucose profiles, until control is adequate.

Where the above ideal regimen is not feasible

Twice-daily regimen with biphasic insulin.

Empiric starting dose if previous insulin requirements not known:

daily dose = 0.2 units/kg/day, $\frac{2}{3}$ with breakfast and $\frac{1}{3}$ with supper.

Titrate daily to achieve target blood glucose as above.

During labour:

Monitor serum glucose hourly.

Administer short acting insulin to maintain physiological blood glucose levels.

- insulin, soluble, short acting, continuous IV infusion, 10 units plus 20 mmol potassium chloride in 1 L dextrose 5% at an infusion rate of 100 mL/hour, i.e. 1 unit of insulin/hour

If blood glucose < 4 mmol/L, discontinue insulin.

If > 9 mmol/L, increase to 20 units/L.

The postpartum insulin requirements decrease rapidly.

During the first 48 hours blood sugar levels are maintained by 4-hourly blood glucose measurement and regular short-acting insulin administration.

Resume prepregnancy insulin or oral hypoglycaemic regimen once eating a full diet.

The newborn is at risk of:

- hypoglycaemia (very common),
- respiratory distress,
- hyperbilirubinaemia,
- congenital abnormalities.

Postpartum contraception

Tubal ligation should be considered.

Consider:

- low-dose combined contraceptive in well-controlled cases
- progestogen-only preparation or intra-uterine device if the control is unstable.

6.4 HEART DISEASE IN PREGNANCY

DESCRIPTION

During labour the load on the heart is particularly high and any increased load should be prevented.

Refer for specialist assessment.

NON-DRUG TREATMENT

Screen for infections and anaemia, which may aggravate the cardiac condition.

Spontaneous delivery is usually preferable to Caesarean section, unless there are obstetric reasons for surgery.

Nurse in semi-Fowler position.

Restrict intravenous fluids.

Assist second stage of labour with forceps or vacuum extraction if does not progress rapidly.

Contraception, including the option of tubal ligation should be discussed after delivery in all women with significant heart disease.

Women having had serious complications during pregnancy should be advised not to become pregnant again.

A heart valve prosthesis must be considered a relative contraindication to pregnancy.

DRUG TREATMENT

Anticoagulation

Indications for prophylactic anticoagulation during pregnancy:

- more than one previous episode of venous thromboembolism
- one previous episode without a predisposing factor, or with evidence of thrombophilia
- valvular disease with atrial fibrillation
- women with prosthetic heart valves