DIPLOMA OF PRIMARY CARE DENTISTRY

-RCSI-

PART – 1

CLINICAL SKILLS

PART 8: MEDICINE RELEVANT TO DENTISTRY

A. ANAEMIA:

→ Anaemia is a decrease in the level of circulating haemoglobin (Hb) to below the normal reference range for a patient's age and sex.

→ It indicates an underlying problem and, as such, the cause of the anaemia should be diagnosed before instituting treatment.

→ **Clinical features:**

- These are notoriously unreliable, but may include general fatigue, heart failure.
- Angina on effort.
- Pallor (look at conjunctivae and palmar creases, but unreliable).
- Brittle nails and/or spoon-shaped nails (koilonychia).
- Oral discomfort and /or ulceration.
- Glossitis
- Classically angular cheilitis.

→ **Types of anaemia:**

1. **Microcytic (MCV 100fL.)**:

- MCV< 78fL.
- Iron deficiency anaemia is by far the commonest cause.
- Causes:
  - Chronic blood loss (gastrointestinal or menstrual).
  - Inadequate diet.
- FBC and biochemistry show microcytic, hypochromic anaemia with a low serum iron and a high total iron binding capacity (TIBC).
- Increase RBC zinc protoporphyrin is a fast and sensitive early test.
- Thalassaemia and sideroblastic anaemia are rare causes of microcytosis.

2. **Normocytic**:

- Commonly, anaemia of chronic disease.
- Other causes: pregnancy, acute blood loss, haemolytic anaemia, and aplastic anaemia.
- Once pregnancy is excluded, the patient needs investigation by an expert.
- The TIBC is usually decreased.

3. **Macrocytic (MCV > 100fL.)**:
   - ⌘ Low vitamin B12 &/or low folate are the common causes.
   - ⌘ Vitamin B12 is d in pernicious anaemia (deficit of intrinsic factor), alcohol abuse, small gut disease, and chronic exposure to nitrous oxide.
   - ⌘ Low folate is usually dietary, but may be caused by illness (coeliac disease, skin disease) or drug such as phenytoin, methotrexate, trimethoprim and co-trimoxazole.

→ **Management:**

- In all cases the cause must be sought; this may necessitate referral to a haematologist.
- Drugs used in iron deficiency: ferrous sulfate 200mg tds.
- Transfusion of packed cells covered with furosemide 40mg PO if elderly or decrease cardiac function, indicated rarely for severe microcytic anaemia.
- Lifelong IM hydroxocobalamin 1mg 3-monthly is used to treat vitamin B12 deficiency, and folic acid 5mg od for folate deficiency.
- Never use folate alone to treat 'macrocytosis' unless it is proven to be the only deficiency.

Sickle cell anaemia:

- A homozygous hereditary condition causing red cells to 'sickle' when exposed to low O2 tensions, resulting in infarctions of bone and brain.
- In sickle cell trait (heterozygous form), the cells are less fragile and sickle only in severe hypoxia.
- Management: perform Hb electrophoresis (or Sickledex® if result needed urgently) on all Afro-Caribbean (and consider Mediterranean, Middle Eastern, and Indian) patients planned for GA.

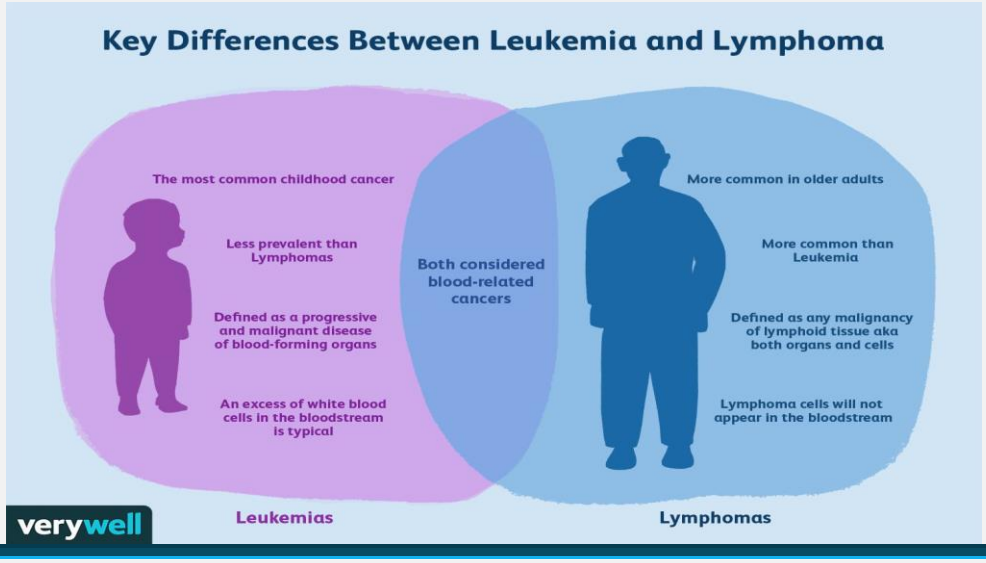
B. HAEMATOLOGICAL MALIGNANCY:

1. Leukaemias:

- ω A neoplastic proliferation of white blood cells.
- ω Acute leukaemias are characterized by the release of primitive blast cells into the peripheral blood and account for 50% of childhood malignancy.
- ω Acute lymphoblastic leukaemia, the commonest childhood leukaemia, now has up to 90% cure rate in favourable cases.
- ω May present as gingival hypertrophy and bleeding.
- ω Acute myeloid leukaemia is the commonest acute leukaemia of adults, with high remission rates possible but a tendency to relapse.
- ω Chronic leukaemias have cells that retain most of the appearance of normal white cells.
- ω Chronic lymphocytic leukaemia is the commonest and has a 5yr survival of >50%.
- ω Chronic myeloid leukaemia is characterized by the presence of the Philadelphia chromosome, a fact beloved by examiners.
- ω Affects the >40s.
- ω treatment: interferon &/or bone marrow transplantation or stem cell transplantation.
- ω Remissions are common, although a terminal blast crisis usually supervenes at some stage.

2. Lymphomas:

- ω Solid tumours arising in lymphoid tissue.
- ω Their classification: Hodgkin's or non-Hodgkin's lymphomas.
- ω Prognosis is highly variable and type dependant.
- ω Lymphoma should always be considered in the differential diagnosis of neck swellings.



C. BLEEDING DISORDERS:

➲ Platelet disorders:

- May present as nosebleeds, purpura, or post-extraction bleeding. Remember that aspirin is the most common acquired cause, its effect being irreversible for 1 week.
- Other causes include diseases such as Von Willebrand's disease; immune thrombocytopenic purpura (ITP); virally associated (especially HIV) thrombocytopenic purpura; thrombocytopenia 2° to leukaemia; cytotoxic drugs; or unwanted effects of drugs, notably aspirin and chloramphenicol.
- Management: ensure platelet levels of >50 × 109 /L, preferably 75 × 109 /L for anything more than simple extraction or LA. If actively bleeding, use a combination of local measures, tranexamic acid, and platelet transfusion.
- Platelet transfusions are short-lived and if used prophylactically must be given immediately prior to or during surgery.
- The quality of preparation varies by locality. Tranexamic acid mouthwash may decrease oral bleeding.

➲ Coagulation defects:

- Present as prolonged wound bleeding &/or haemarthroses.
- Causes include the haemophilias, anticoagulants, liver disease, and von Willebrand's disease.

➲ Haemophilia A (factor VIII deficiency):

- **The commonest clotting defect.**
- Inherited as a sex-linked recessive, it affects males predominantly, although female haemophiliacs can occur.
- All daughters of affected males are potential carriers.
- Usually presents in childhood as haemarthroses.
- Bleeding from the mouth is common.
- Following trauma, bleeding appears to stop, but an intractable general ooze starts after an hour or so.
- Severity of bleeding is dependent on the level of factor VIII activity and degree of trauma.

➲ Haemophilia B (factor IX deficiency):

- Clinically identical to haemophilia A; also known as **Christmas disease.**
- Von Willebrand's disease A combined platelet and factor VIII disorder affecting males and females.
- Mucosal purpuras are common, haemarthroses less so.
- Wide range of severity. May improve with age &/or pregnancy.

- Management:

→ The haemophilias and Von Willebrand's disease should always be managed at specialist centres.
→ Check the patient's warning card for the contact telephone number.

Anticoagulants:

Heparin:

- Given IV or high-dose SC for therapeutic anticoagulation.
- Its effect wears off in ~8h although it can be reversed by protamine sulfate in an emergency.
- Measure in activated partial thromboplastin time (APTT).

Warfarin:

- Given orally; effects take 48h to be seen.
- Normal therapeutic range is an international normalized ratio (INR) of 2–4.
- Simple extractions are usually safe at a level within therapeutic range. Reverse the effects of warfarin with vitamin K &/or fresh frozen plasma if needed but consider why the patient is anticoagulated in the first place.

Low-molecular-weight heparin:

- Given SC, these are small fractions of heparin salts commonly used for short-term prevention of deep vein thrombosis or, in higher doses, for full anticoagulation.
- Measuring or reversing activity are rarely required but differ from heparin—anti-factor Xa assay is used to measure activity and reversal with protamine sulfate is only partially effective.

D. CARDIOVASCULAR DISEASE:

- Hypertension:
  - A consistently raised BP (>140 mmHg systolic, >90 mmHg diastolic >3 months) and is a risk factor for ischaemic heart disease, cerebrovascular accidents, and renal failure.
  - Up to 95% of hypertension has no definable cause: essential hypertension.
  - 5% is 2° to another disease such as renal dysfunction or endocrine disorders.

- Ischaemic heart disease:
  - Decrease of the blood supply to part of the heart by narrowing of the coronary arteries, usually by atheroma, causing the pain of angina pectoris.
  - If myocardial cells die as a result, acute coronary syndrome (myocardial infarction (MI)) occurs.

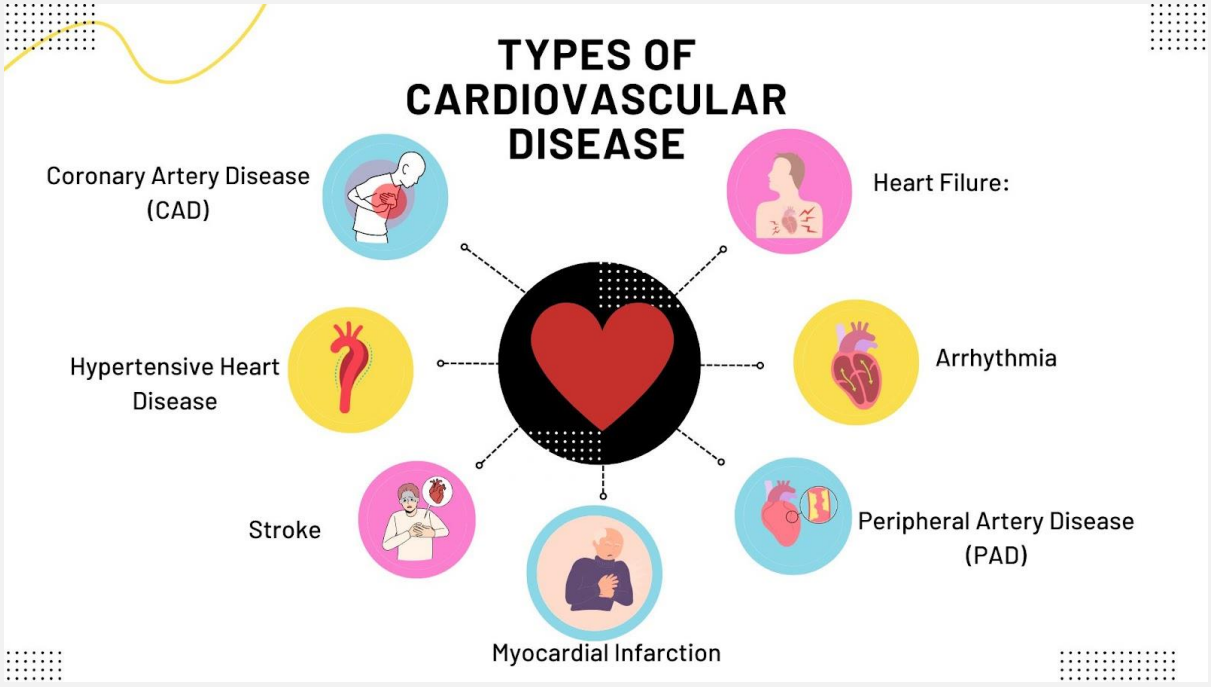
- Heart failure:
  - The end result of a variety of conditions, not all of them cardiovascular.
  - Basically, the heart is unable to meet the circulatory needs of the body.
  - In right heart failure, dependent oedema and venous engorgement are prominent. In left heart failure, breathlessness is the principal sign. The two often coexist.
  - There is an ever-present risk of precipitating heart failure, even in treated patients, by increase the demands on the heart, by fluid overload or excessive exertion.

- Hypovolaemic shock:
  - Collapse of the peripheral circulation due to a sudden d in the circulating volume.
  - If this is not corrected there can be failure of perfusion of the vital organs, resulting in heart failure, renal failure, and unconsciousness ending in death.

- Murmurs:
  - Disturbances of blood flow which are audible through a stethoscope.
  - They may be functional or signify structural disorders of the heart.
  - Echocardiography will differentiate.
  - They are of great relevance to dentists as their presence warns of the potential for colonization of damaged valves by blood-borne bacteria.
  - Such a bacteraemia can be caused by dental procedures.

➲ **Dental implications:**

- ω Patients with a PMH of rheumatic fever are very likely to have some damage to a heart valve, usually the mitral valve.
- ω The risk of precipitating heart failure or MI in patients with compromised cardiovascular systems is ever present.
- ω Prevent by avoiding GA, especially within 3 months of an MI, using adequate LA with sedation if necessary, and avoid excessive adrenaline loads.
- ω Consider potential drug interactions and remember some of these patients will be anticoagulated.
- ω Exclusion of septic foci may be requested in patients at high risk from bacteraemia, heart transplant recipients, those with prosthetic valves or valvular damage, or those with a history of infective endocarditis.
- ω It is prudent to err on the side of caution with these individuals and some will need dental clearances.



E. RESPIRATORY DISEASE:

- Disease of the chest is an everyday problem in developed countries.
- The principal symptoms are cough, which may or may not be productive of sputum, dyspnoea (breathlessness), and wheeze.
- The coughing of blood (haemoptysis) mandates that malignancy be excluded.

Upper respiratory tract infections:

- Include the common cold, sinusitis, and pharyngitis/tonsillitis (which may be viral or bacterial), laryngotracheitis, and acute epiglottitis.
- All are C/I to elective GA in the acute phase.
- Sinusitis.
- Penicillin is the drug of choice for a streptococcal sore throat.
- Avoid amoxicillin and ampicillin, as glandular fever may mimic this condition and these drugs will produce a rash, of varying severity, in such a patient.
- Epiglottitis is an emergency, and if suspected the larynx should **NEVER** be examined unless expert facilities for emergency intubation are to hand.

Lower respiratory tract infections:

- Both viral and bacterial lower tract infections are debilitating and constitute a C/I to GA for elective surgery.
- Bear in mind TB and atypical bacteria, like Legionella, Mycoplasma, and Coxiella.
- Open TB is highly infectious and cross-infection precautions are mandatory.

Chronic obstructive pulmonary disease (COPD):

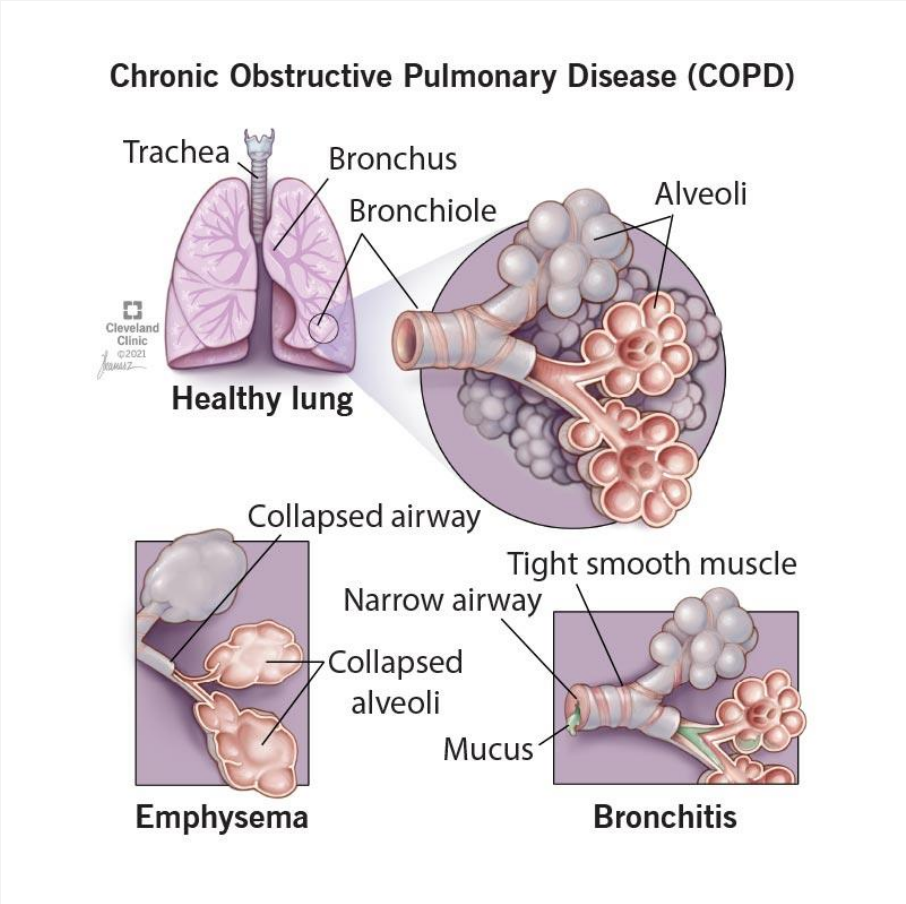
- A very common condition usually caused by a combination of bronchitis (excessive mucus production, persistent productive cough >3 months per year for 3yrs) and emphysema (dilation and destruction of air spaces distal to the terminal bronchioles).
- Smoking is prime cause and must be stopped for treatment to be of any value.
- Be aware of possible systemic steroid use.

Asthma:

- ω Reversible bronchoconstriction causes wheezing and dyspnoea.
- ω Up to 8% of the population are affected; there is often an allergic component.
- ω Patients complain of the chest feeling tight.
- ω May be precipitated by NSAIDs. Penicillin and aspirin allergies are more common.

➲ <u>Dental implications:</u>

- Avoid GA. Use analgesics and sedatives with caution; opioids and sedatives d respiratory drive; NSAIDs may exacerbate asthma.
- Advise your patients to stop smoking (and if you are a smoker, stop).
- Refer if suspicious, especially in the presence of confirmed haemoptysis.



F. HEPATIC DISEASE:

- The main problems presented by patients with liver disease are the potential for increase bleeding, inability to metabolize and excrete many commonly used drugs, and the possibility that they can transmit Hep B, C, &/or D (Hep A and E are spread by faecal–oral route).
- The liver is also a site of metastatic spread of malignant tumours.
- Patients in liver failure needing surgery, especially under GA, are a high-risk group who should have specialist advice on their management.

- The prime symptom of liver disease is **Jaundice:**

➲ It is a widespread yellow discoloration of the skin (best seen in good light, in the sclera), caused by the inability of the liver to process bilirubin, the breakdown product of haemoglobin.

➲ This occurs either because it is presented with an overwhelming amount of bilirubin to conjugate (haemolytic anaemia), or it is unable to excrete bile (cholestatic jaundice).

- Surgery in patients with liver disease:

→ Ascertain a diagnosis for the cause.
→ Do hepatitis serology.
→ Cross-infection precautions.
→ Perform a coagulation screen.
→ May need correction with vitamin K or fresh-frozen plasma.
→ Always warn the anaesthetist, as it will affect the choice of anaesthetic agents.
→ If a jaundiced patient must undergo surgery, correct fluid and electrolyte balance, and ensure a good peri-operative urine output by aggressive IV hydration with 5% glucose and mannitol diuresis to avoid hepato-renal syndrome.
→ Do not use IV saline in patients in fulminant hepatic failure, as there is a high risk of **inducing encephalopathy.**

- Liver disease patients in dental practice:

× Know which disease you are dealing with. If Hep B or C, employ strict cross-infection control.
× Be cautious in prescribing drugs and with administering LA.
× Do not administer GAs.
× Take additional local precautions against post-operative bleeding following simple extractions.

G. RENAL DISORDERS:

- The commonest urinary tract problems, infections, are of relevance only to those who manage in-patients.
- Rarer conditions such as renal failure and transplantation are, surprisingly, of more general relevance because these patients are at increased risk from infection, bleeding, and iatrogenic drug overdose during routine treatment.

✹ Urinary tract infections:

- A common cause of toxic confusion in elderly in-patients, especially females.
- Send a mid-stream urine (MSU) for culture and sensitivity, then start trimethoprim 200mg bd PO or ampicillin 250mg qds PO and ensure a high fluid intake.
- Minimal investigations of renal function are U&Es, creatinine, and ionized Ca2+.

✹ Nephrotic syndrome:

- A syndrome of proteinuria (>3.5g/day), hypoalbuminaemia, and generalized oedema.
- Facial oedema is often prominent.
- Glomerulonephritis is the major precipitating cause and investigations should be carried out by a physician with an interest in renal medicine.

✹ Acute kidney injury (formerly acute renal failure):

- A medical emergency causing a rapid rise in serum creatinine, urea, and K+.
- It may follow surgery or major trauma and is usually marked by a failure to pass urine. Remember the commonest causes of failing to pass urine post-operatively are under-infusion of fluids and urinary retention.
- Treatment:
  - Increase IV fluid input and catheterize.
  - If acute kidney injury is suspected, get urgent U&Es, ECG, and blood gases.
  - Obtain aid from a physician.
  - Control of hyperkalaemia, fluid balance, acidosis, and hypertension are the immediate necessities.

✹ Chronic kidney disease (formerly chronic renal failure):

- Basically, the onset of uraemia after gradual, but progressive renal damage, commonly caused by glomerulonephritis, pyelonephritis, or adult polycystic disease (congenital cysts within Bowman's capsule).
- It has protean manifestations, starting with nocturia and anorexia, progressing through hypertension and anaemia to multisystem failure.

- Continuous ambulatory peritoneal dialysis, haemodialysis, and transplants are the mainstays of treatment.

➲ Main problems relevant to dentistry:

1. Increase risk of infection, worsened by immunosuppression.
2. Increase bleeding tendency.
3. Decrease ability to excrete drugs.
4. Veins are sacrosanct; never use their arteriovenous fistula.
5. Bone lesions of the jaws (renal osteodystrophy, 2° hyperparathyroidism).
6. Generalized growth impairment in children.
7. Potential carriage of Hep B, HIV.

✹ Renal transplantation:

- An increasingly common final treatment of renal failure, and when successful renal function may reach near-normal levels.
- Kidneys are, however, immunosuppressed and at greatly increase risk from infection.
- They may share the problems associated with chronic kidney disease depending on the level of function of the transplant.

✹ Hints when dealing with these patients:

- Take precautions against cross-infection.
- Treat all infections aggressively and consider prophylaxis.
- Use additional haemostatic measures.
- Be cautious with prescribing drugs.
- Never subject these patients to out-patient GA.
- Try to perform treatment just after dialysis if possible

H. ENDOCRINE DISEASE:

- Addison's disease:
  - 1° hypoadrenocorticism.
  - Atrophy of the adrenal cortices causes failure of cortisol and aldosterone secretion.
  - 2° hypoadrenocorticism is far commoner, due to steroid therapy or ACTH deficiency.

- Cushing's disease/syndrome:
  - These are due to excess corticosteroid production.
  - The disease refers to 2° adrenal hyperplasia due to increase ACTH, whereas the syndrome is a 1° condition, usually due to therapeutic administration of synthetic steroid or adenoma.
  - Classical features are obesity (moon face, buffalo hump) sparing the limbs, osteoporosis, skin thinning, and hypertension.

- Diabetes insipidus:
  - Production of copious dilute urine due to d antidiuretic hormone secretion or renal insensitivity to antidiuretic hormone.
  - May occur temporarily after head injury.

- Diabetes mellitus: Persistent hyperglycaemia due to a relative deficiency of insulin.

- Gigantism/acromegaly: Excess production of growth hormone, before and after fusion of the epiphyses, respectively. Goitre A large thyroid gland, of whatever cause.

- Hyperthyroidism:
  - Symptoms of heat intolerance, weight loss, and sweating occur.
  - Signs are tachycardia (atrial fibrillation), lid lag, exophthalmos, and tremor.
  - **Commonest cause is Graves disease.**
  - Functioning adenomas are another cause.:

- Hypothyroidism:
  - Can be 1° due to thyroid disease, or 2° to hypothalamic or pituitary dysfunction.
  - 1° disease is often an autoimmune condition.
  - Symptoms are poor tolerance of cold, loss of hair, weight gain, loss of appetite, and poor memory.
  - Signs are bradycardia and a hoarse voice.

✹ Hyperparathyroidism:

- ω 1° is caused by an adenoma. 2° is a response to low plasma Ca2+, in renal failure, and 3° follows on from 2° when the parathyroids continue increase production, even if Ca2+ is normalized.

✹ Hypoparathyroidism:

- ω Usually 2° to thyroidectomy, when parathyroid glands inadvertently removed. Plasma Ca2+ decrease, resulting in tetany.
- ω **Chvostek's sign is +ve** if spasm of facial muscles occurs after tapping over the facial nerve.

✹ Phaeochromocytoma:

- ○ A very rare tumour of the adrenal medulla, secreting adrenaline and noradrenaline.
- ○ Symptoms are recurring palpitations and headache with sweating.
- ○ Simultaneous hypertension with a return to baseline on settling of symptoms is a good marker.

✹ Pituitary tumours:

× May erode the pituitary fossa (seen on lateral skull X-ray) and can cause blindness via **optic chiasma compression.**

⇒ Endocrine-related problems:

⌘ Pregnancy: Elective Rx is best performed in the mid-trimester.

⌘ Menopause: It is often associated with hot flushes/flashes and other physical problems. Emotional disturbances may coexist, and the incidence of psychiatric disorders increase at this time.

⌘ Malignant hyperpyrexia: A rare, potentially lethal reaction to, usually, an anaesthetic agent. Characterized by increase pulse, muscle rigidity, and increase temperature. Dantrolene sodium and cooling may be lifesaving.

I. DISORDERS OF BONE METABOLISM:

- Rickets/osteomalacia:
  - Failure of bone mineralization in, respectively, children and adults.
  - Can be caused by deficiency, failure of synthesis, malabsorption, or impaired metabolism of vitamin D, and hypophosphatemia or increase Ca^{2+} requirement in pregnancy.
- Osteoporosis:
  - A lack of both bone matrix and mineralization.
  - Important causes are steroid therapy, post-menopausal hormone changes, immobilization, and endocrine abnormalities.
  - Hormone replacement therapy in post-menopausal women appears helpful.
  - Results in increase incidence of #, especially femoral neck and wrist.
  - Bisphosphonates are being aggressively promoted in the treatment of osteoporosis resulting in some of the noted increase in BRONJ.
- Fibrous dysplasia:
  - Replacement of a part of a bone or bones by fibrous tissue with associated swelling.
  - It usually starts in childhood and ceases with completion of skeletal growth.
  - Termed monostotic if one bone is affected, polyostotic if more than one bone, and Albright syndrome if associated with precocious puberty and café au lait areas of skin hyperpigmentation.
- Cherubism: A bilateral variant of fibrous dysplasia.
- Paget's disease of bone:
  - A common disorder of the elderly, where the normal, orderly replacement of bone is disrupted and replaced by a chaotic structure of new bone, causing enlargement and deformity.
  - The hands and feet are spared.
  - Complications include bone pain and cranial nerve compression, or, more rarely, high output cardiac failure or osteosarcoma.
  - Another condition that is treated with bisphosphonates.

J. NEUROLOGICAL DISORDERS:

→ **Cranial nerves:**

1. Olfactory: Sense of smell is rarely tested, although damage is quite common following head &/or mid-face trauma.
2. Optic: Examine the pupils for both direct and consensual reflex; assess the visual fields; check visual acuity and examine the fundus with an ophthalmoscope.
3. Oculomotor:
   - The motor supply to the extra-ocular muscles except lateral rectus and superior oblique.
   - It supplies the ciliary muscle, the constrictor of the pupil, and levator palpebrae superioris.
   - A defect therefore causes impairment of upward, downward, and inward movement of the eye, leading to diplopia, drooping of the upper eyelid (ptosis), and absent direct and consensual reflexes.
4. IV: trochlear: Supplies superior oblique, paralysis of which causes diplopia; worst on looking downward and inward.
5. V: trigeminal:
   - The major sensory nerve to the face, oral, nasal, conjunctival, and sinus mucosa, and part of the tympanic membrane.
   - It is motor to the muscles of mastication.
   - Sensory abnormalities are mapped out using gentle touch and pinprick.
   - Motor weakness is best assessed on jaw opening and excursion.
6. VI: abducens:
   - Supplies lateral rectus.
   - A defect causes paralysis of abduction of the eye.
7. VII: facial: Motor to the muscles of facial expression.
   - Supplies taste from the anterior two-thirds of tongue (via chorda tympani) and is secretomotor to the lacrimal, sublingual, and submandibular glands.
   - It innervates the stapedius muscle in the middle ear.
   - The lower face is innervated by the contralateral motor cortex, whereas the upper face has bilateral innervation.
   - Assess by demonstrating facial movements.

8. VIII: vestibulocochlear:
   - Is sensory for balance and hearing.
   - Deafness, vertigo, and tinnitus are the main symptoms.

9. IX: glossopharyngeal:
   - Supplies sensation and taste from the posterior one-third of the tongue, motor to stylopharyngeus, and secretomotor to the parotid.
   - Lesions impair the gag reflex in conjunction with X.

10. X: vagus:
   - Has a motor input to the palatal, pharyngeal, and laryngeal muscles.
   - Impaired gag reflex, hoarseness, and deviation of the soft palate to the unaffected side are seen if damaged.
   - The vagus has a huge parasympathetic output to the viscera of the thorax and abdomen.

11. XI: accessory:
   - Is motor to sternomastoid and trapezius, causing weakness on shoulder shrugging and on turning the head away from the affected side.

12. XII: hypoglossal:
   - Motor supply to the tongue. Lesions cause dysarthria (impaired speech) and deviation towards the affected side on protrusion.

Neurological diseases:

⇒ Epilepsy:

- An episodic outflow from the brain causing disturbances of consciousness, motor function, and sensory function.
- Most causes are idiopathic.
- Major or grand mal epilepsy is characterized by an aura and loss of consciousness and followed by tonic and clonic phases. Incontinence is a good guide to a genuine seizure.
- The fit rarely lasts >5min; if it does, the patient has entered status epilepticu.

a. Petit mal (absence attacks): These are epileptic attacks usually confined to children, taking the form of a short absence when movement, speech, and attention cease.
b. Temporal lobe epilepsy: Characterized by hallucinations of the special senses.

c. Localized (Jacksonian) epilepsy: Affects limbs in isolation. Patients with established epilepsy (once any treatable cause has been excluded) must be maintained on adequate levels of antiepileptic drugs.

d. Febrile convulsions Fits, usually in children >5yrs old, 2° to pyrexia.

⇒ Myasthenia gravis:

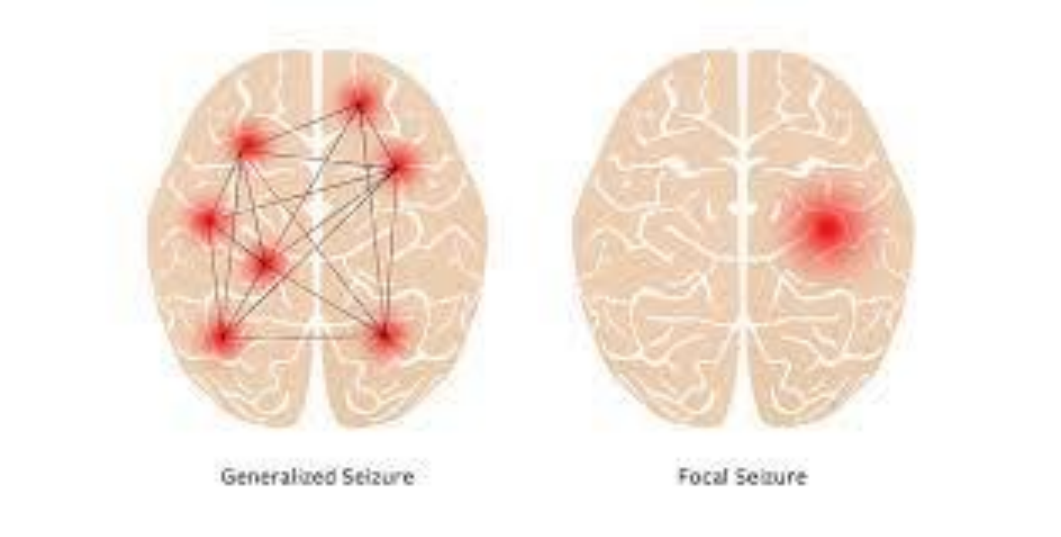
- ω Muscle weakness due to inadequate response to, or levels of, acetylcholine.
- ω Extra-ocular muscles are often first affected.

⇒ Parkinson's disease:

- ω A disease affecting the basal ganglia associated with a decrease in the local levels of dopamine.
- ω Characterized by a 'pill-rolling' tremor, 'cog-wheel' rigidity, and bradykinesis with a shuffling gait.

⇒ Cerebrovascular accidents (strokes):

- ω A very common cause of death in the elderly.
- ω A stroke is basically death of part of the brain following cerebral ischaemia, either due to bleeding into the brain or occlusion of vessels.
- ω It is often clinically difficult to distinguish these different types of strokes.
- ω As for acute coronary syndromes, rapid thrombolysis may be indicated, as may interventional endovascular procedures.



The immunocompromised patient:

- These are a group of individuals who present special problems because of defects in, or suppression of, their immune system.
- The condition with the highest profile among these is AIDS.
- The chief effect of being immunocompromised is an increase susceptibility to infection, often due to opportunistic organisms.
- Anything which changes the host environment in favour of opportunistic pathogens (surgery, broad-spectrum antibiotics) can lead to potentially fatal infection with rare or otherwise innocuous organisms.

⇒ Acquired immunodeficiency:

- Autoimmune disease: Autoimmune disease (like SLE, rheumatoid arthritis) carries a minor increased risk of infection.
- Chronic kidney disease: Moderately increased risk.
- Deficiency states: Examples include anaemia, carry a minor increased risk.
- Diabetes mellitus: Common and carries a moderate increased risk of infection.
- Infections: Severe viral infections, TB, AIDS (specific defect).
- Neoplasia: All haematological malignancies severely increased risk of infection.

⇒ AIDS:

- AIDS is caused by infection with HIV.
- A CD4 T-lymphocyte defect ensues with failure of (mostly) cell-mediated immunity.
- The HIV antibody is useful as a marker of infectivity but its absence does not guarantee there is no infection present. Infection causes a short flu-like illness, then a variable latent period while CD4 cells d in number.
- Full-blown AIDS develops when CD4 levels fall critically low.
- **Kaposi's sarcoma is the tumour most often associated with the condition**. T
- he mode of transmission is, essentially, exchange of bodily fluids: unprotected sex, as a recipient of contaminated blood or blood products, or mother-to-fetus transmission.
- Treatment is with HAART and measures to prevent opportunistic infections.

The End