Pituitary Disease

Hypopituitarism

- Decreased secretion of anterior pituitary hormones.

They are affected in the following order

- GH
- Gonadotropins
- FSH/LH
- Prolactin
- TSH
- ACTH

Panhypopituitarism is a deficiency of all anterior hormones, caused by:

- Irradiation
- Surgery
- Tumour

Causes

- Hypothalamus level (tumour, inflammation, infection, ischaemia)
- Pituitary Stalk level (Trauma, surgery, mass lesion, meningioma, aneursym)
- Pituitary Level (Tumour, irradiation, inflammation, autoimmunity, infiltration, ischaemia)

Clinical Features

GH Lack

- Central Obesity
- Atherosclerosis
- Decreased strength
- Dry skin
- Decreased balance
- Decreased exercise ability
- Decrased glucose

FSH/LH lack

- Amenorrhoea
- Decreased fertility
- Decreased libido
- Osteoporosis
- Breast atrophy
- Dyspareunia
- Erectile dysfunction

- Decreased libido
- Decreased muscle bulk
- Hypogonadism

TSH Lack

- Hypothyroidism

Corticotrophin lack

- Addison's Disease

Prolactin Lack

- Rare

Investigations

- Basal Tests (Haematology)
- Dynamic Tests (Short Synacthen test, Insulin Tolerance Test, Glucagon stimulation test)

Treatment

- Hormone Replacement (Hydrocortisone, Thyroxine, Testosterone, GH)
- Treatment of underlying cause

Pituitary Tumour

- Almost always adenomas
- 10% of intracranial tumours

Classification

- Microadenoma (<1cm) or Macroadenoma (>1cm)

Three histological types:

- Chromophobe (70%. Many are non-secretory, some cause hypopituitarism. 50% produce prolactin, few produce ACTH or GH. Local pressure effect in 30%)
- Acidophil (Secrete GH/Prolactin, local pressure effect in 10%)
- Basophil (Secrete ACTH, local pressure rare)

Clinical Features

Symptoms are caused by pressure, hormones or hypopituitarism

- Headache
- Bitemporal Hemianopia
- Cranial Nerve Palsy III, IV, VI
- Diabetes Insipidus
- Disturbance of temperature, sleep and appetite

Investigations

- MRI
- Basal Tests (Haematology)
- Dynamic Tests (Short Synacthen test, Insulin Tolerance Test, Glucagon stimulation test)

Treatment

- Hormone Replacement if needed
- Surgery (Trans-sphenoidal usually)
- Radiotherapy

Post-Op

- Recurrence may occur late so life long follow up is required

Hyperprolactinaemia

Commonest hormonal disturbance of the pituitary. Prolactin is secreted from the anterior pituitary and release is inhibited by dopamine produced in the hypothalamus.

Causes

Hyperprolactinaemia may result from: 1. Excess production 2. Disinhibition, by compression of the pituitary stalk 3. Use of a dopamine antagonist

Physiological

- Pregnancy
- Breastfeeding
- Stress

Drugs

- Metoclopromide
- Haloperidol
- Oestrogen
- MDMA
- Anti-psychotics

Diseases

- Micro/Macroadenoma
- Stalk Damgage from adenomas, surgery, trauma
- Hypothalamic disease
- Hypothyroidism
- CKD

Symptoms

- Amenorrhoea
- Decreased fertility
- Decreased libido
- Galactorrhoea
- Erectile dysfunction
- Decreased facial hair
- Galactorrhoea

Management

- Dopamine agonists are 1st line
- Surgery if intolerant to therapy
- Surgery if visual symptoms/pressure effects from an adenoma

Follow-up

- Monitor Prolactin
- If headache or visual loss, check fields
- Can reduce medications after 2 years, but recurrence may occur

Acromegaly

- Due to increased secretion of growth hormone from a pituitary tumour or hyperplasia
- GH stimulates bone and soft tissue growth through IGF-1

Symptoms

- Amenorrhoea
- Decreased libido
- HEadache
- Increased Sweating
- Snoring
- Things don't fit
- Putting on weight
- Wonky bite

Signs

- Growth of hands, jaw and feet
- Coarsening of face, wide nose
- Large supraorbital ridges
- Macroglossia
- Widely spaced teeth
- Puffy lips, lids and skin
- Skin darkening
- Acanthosis Nigrans
- Laryngeal Dyspnoea
- Goitre

- Proximal weakness
- Arthropathy
- Carpal Tunnel
- Signs from a pituitary mass

Investigations

- Glucose
- Calcium and Phosphate
- GH
- MRI of pituitary fossa
- Visual Fields
- Echo
- ECG
- Old photos

Treatment

- Surgery first line
- Somatostatin analogues
- Radiotherapy
- GH antagonists

Complications

- CCF
- Impaired glucose tolerance/DM
- Ketoacidosis
- HTN
- LVH
- Cardiomyopathy
- Arrthymias
- Increased IHD risk
- Increased Stroke risk
- Increased Colon Ca risk

Prognosis

- May return to normal
- Additional vascular morbidity

Diabetes Insipidus

Passage of large volumes of dilute urine due to impaired water resorption by the kidney, because of:

- reduced ADH secretion from the posterior pituitary

or

- impaired response of the kidney to ADH

Classification

- Nephrogenic DI
- Cranial DI

Symptoms

- Polyuria
- Polydipsia (uncontrollable and all consuming)
- Dehyrdration
- Symptoms of hypernatraemia

Causes of Cranial DI

- Idiopathic
- Congenital
- Tumour (Mets, Pituitary Tumour, Craniopharyngioma)
- Trauma
- Infilration (Histiocytosis/Sarcoidosis)
- Vascular (Haemorrhage)

Causes of Nephrogenic DI

- Inherited
- Metabolic (Low K+, High Calcium)
- Drugs (Lithium)
- Chronic Renal Disease
- Post-obstructive uropathy

Investigations

- U+E
- Calcium
- Glucose
- Serum and Urine Abnormalities
- MRI

Diagnosis

- 8 hour water deprivation test
- https://www.nbt.nhs.uk/sites/default/files/Water%20Deprivation%20Test%20in%20Adults.pdf

Treatment

Cranial DI

- Find the cause
- Give desmopressin

Nephrogenic DI

- Treat the cause
- Try bendroflumethiazide, NSAIDs