Hypopituitarism is the inability of the pituitary gland to produce sufficient hormones adapted to the needs of the organism. It might be caused by either an inability of the gland itself to produce hormones or an insufficient supply of hypothalamic-releasing hormones.

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- Tumoral masses in the sellar region with suprasellar extension can become manifest with visual impairment that is slowly progressive in most cases. Visual field defects can present not only as classic bitemporal hemianopia but also unilaterally in many cases. Usually, such defects remain unrecognized by patients until diagnosed by a doctor.

- Headaches can be an unspecific symptom of tumour masses. In case of lateral extension, rarely, signs of oculomotor nerve impairment and, even less common, additional damage to other cranial nerves within the cavernous sinus might arise.

- Hypopituitarism can be subclinical, indicated only by measurement of hormones, or its clinical onset might be acute and severe, necessitating admission and intensive care management. Shortages of adrenocorticotropic hormone (ACTH), thyroid-stimulating hormone (TSH), and antidiuretic hormone (ADH) are potentially life-threatening.

- Gonadotropin and growth-hormone deficiencies, on the other hand, cause chronic morbidity. Raised prolactin concentrations sometimes accompany hypopituitarism because of disruption of inhibitory signals by the hypothalamus. This alteration can cause lactation, tenderness of the breast, and suppression of gonadotropins, leading to symptoms of hypogonadism.

- Cranial MRI should be done to exclude tumours and other lesions of the sellar and parasellar region after hypopituitarism has been confirmed. Of sellar tumours, the pituitary adenoma is the most frequent. However, hypopituitarism is not excluded by normal MRI of the sellar and parasellar region.

**Criteria for hormone deficiency**

- **Corticotrophic function**
  - **Morning cortisol**
    - <150 nmol/L: hypopituitarism
  - **Morning ACTH**
    - Below upper reference range: secondary adrenal insufficiency
  - **Intravenous ACTH test**
    - Control <90 nmol/L
  - **250 μg ACTH test**
    - Control <90 nmol/L, after 30 min

- **Thyrotrophic function**
  - **Ft4 thyroxine**
    - Low (-3 pmol/L)
  - **TSH**
    - Low (normal, occasionally slightly raised)

- **Gonadotrophic function**
  - **Women**
    - Clinical: oligospermia, estrogen <0.2 pmol/L, LH and FSH inappropriate low
  - **Men**
    - LH and FSH inappropriate low

- **Somatotrophic function**
  - **IGF-I**
    - Below in the normal reference range
  - **GHRH stimulation test**
    - Ad libitum growth hormone 0.5-1 μg/kg
  - **GHRH-infusion test**
    - Overweight or normal weight: 100 μg/m² X 1.5-2.0 μg/kg
  - **GHIHGH-GH-H test**
    - Overweight or normal weight: 100 μg/m² X 2.0 μg/kg

- **Protein-pheretic function**
  - **Bone age and plasma sample**
    - Bone age over 1 year < (age - 1) x standards
  - **Water deprivation test**
    - Urine osmolality < 700 mosmol/kg

- **Mating hormone**
  - **Pituitary adenoma**
    - Growth hormone < 5 μg/L

**Imaging**

- Cranial MRI should be done to exclude tumours and other lesions of the sellar and parasellar region.