Cushing's Syndrome Assessment

Cushing's syndrome is a condition caused by excessive amounts of the hormone cortisol being produced in the body. Cortisol is a hormone that helps maintain blood glucose levels, protect the body from stress, and suppress inflammation. This hormone is produced by the adrenal glands, which are located on top of the kidneys. The release of the hormone adrenocorticotropic hormone (ACTH) from the pituitary glands located in the brain signal the body to produce cortisol as part of the endocrine system.



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Physical Examination Findings

Truncal Obesity
Trunk Fat
Weight gain is the most common symptom in Cushing’s syndrome, particularly in the chest and stomach (truncal obesity). It occurs because cortisol causes fat to be redistributed to these areas, leaving patients with a large middle section, but thin arms and legs.

Purple Abdominal Striae
Purple Abdominal Stripes
Purple marks called striae (stretch marks) often appear on the abdomen due to rapid weight gain, as well as decreased amounts of collagen available.

Hypertension
Hiker-BP
Sustained elevated blood pressure is often seen in patients with this disease due to sodium and water retention. This leads to hypervolemia and edema formation, thereby causing hypertension.

Buffalo Hump
Buffalo Hump
Buildup of adipose tissue (a dorsocervical fat pad) on the back of the neck and shoulders occurs and is known as a “buffalo hump.

Thinning Skin
Thin Skin-suit
Excessive amounts of cortisol lead to deficits in collagen level, which subsequently cause thinning of the skin. This makes the skin more easily prone to bruising. Additionally, catabolic processes slow wound healing.

Moon Face
Moon Face
Fat redistribution due to the cortisol effects often lead to a red, puffy, and rounded face; otherwise known as “moon face.”

Decreased Bone Density
Down-arrow Bone
Excessive amounts of cortisol can lead to decreased bone density causing osteoporosis and back pain. Additionally, muscle wasting may occur, causing weakness, especially in the extremities.

Laboratory Findings

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Increased Cortisol Levels

Up-arrow Court-of-Sol

In expected physiology, cortisol is regulated by a feedback loop involving the hypothalamus (brain), pituitary gland (brain) and adrenal glands (kidneys). ACTH, or adrenocorticotropic hormone, is released by the pituitary gland into the bloodstream to act upon the adrenal glands to release cortisol. Excessive cortisol in this normal patient is downregulated by the sensitive hypothalamus, thus completing the feedback loop. In Cushing's syndrome, the feedback loop is altered by either the presence of uncontrolled ACTH or from a problem with the adrenal glands themselves, where the adrenal glands cannot stop making cortisol.

Hyperglycemia

Hiker-Glue-bottle

Hyperglycemia occurs due to the excessive levels of cortisol, which raise blood glucose levels in response to cortisol-induced insulin resistance and glucose intolerance, as well as increased gluconeogenesis by the liver.

Further Considerations

Long Term Glucocorticoid Use

Glue-quarter-on-steroids

The most common cause of Cushing's syndrome is the long-term use of corticosteroids, particularly glucocorticoids like prednisone, dexamethasone, and prednisolone. They are often used to treat chronic conditions like asthma, rheumatoid arthritis, or multiple sclerosis.

Immunosuppression

Moon-suppressed

It is important to be aware that patients with Cushing's syndrome/disease are often immunosuppressed. This places them at increased risk for infection related to their lowered resistance to stress and suppression of the immune system.

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