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Hypopituitarism (Sheehan syndrome)

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Abstract. Hypopituitarism, commonly referred to as Sheehan syndrome, is a rare but serious condition characterized by the inadequate production of hormones by the pituitary gland. Often stemming from postpartum hemorrhage during childbirth, it leads to various hormonal imbalances and systemic manifestations. Symptoms range from fatigue and weight loss to infertility and lactation failure. Diagnosis requires comprehensive hormonal assessments and imaging studies. Treatment entails hormone replacement therapy tailored to individual hormone deficiencies. Early recognition and management are crucial to mitigate long-term complications and improve patients' quality of life.

INTRODUCTION

Hypopituitarism, known colloquially as Sheehan syndrome,

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represents a significant endocrine disorder resulting from insufficient hormone secretion by the pituitary gland. First identified by Harold Leeming Sheehan in 1937, it typically arises due to ischemic necrosis of the pituitary gland following severe postpartum hemorrhage during childbirth. The condition's diverse hormonal deficiencies encompass crucial regulators such as growth hormone, thyroid-stimulating hormone, adrenocorticotropic hormone, follicle-stimulating hormone, luteinizing hormone, and prolactin. Manifestations vary widely, ranging from fatigue and weight changes to reproductive dysfunction and metabolic disturbances. Prompt diagnosis and targeted hormone replacement therapy are pivotal for managing Sheehan syndrome and averting complications. This paper examines the pathophysiology, clinical features, diagnostic approaches, and therapeutic strategies associated with hypopituitarism, shedding light on its significance in clinical practice and public health.

Clinical Features

The first clinical manifestation of Sheehan's syndrome is failure of lactation following delivery which is due to deficiency of prolactin. Subsequently, other symptoms develop which include loss of axillary and pubic hair, amenorrhoea, sterility and loss of libido. Concomitant deficiency of TSH and ACTH may result in hypothyroidism and adrenocortical insufficiency.

EPIDEMIOLOGY

Sheehan syndrome is considered a rare condition, with prevalence estimates varying depending on the population studied and diagnostic criteria used. It predominantly affects women of childbearing age, particularly those who experience severe postpartum hemorrhage during childbirth. Geographical variations in incidence have been reported, with higher rates observed in regions where access to obstetric care may be limited. Despite its rarity, Sheehan syndrome carries significant morbidity and requires vigilant monitoring and management to mitigate its long-term effects on patients' health and well-being. Further epidemiological studies are warranted to elucidate the true prevalence and risk factors associated with this condition.

The signs and symptoms of Sheehan syndrome, as outlined in Robbins Basic Pathology, may include:

Fatigue and weakness: Due to deficiencies in adrenal, thyroid, and growth hormones.

Amenorrhea: Absence of menstrual periods, often due to

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decreased levels of gonadotropins.

Galactorrhea: Inappropriate lactation due to decreased levels of prolactin-inhibiting hormone.

Failure to lactate: Inability to produce breast milk after childbirth.

Hypotension: Low blood pressure, resulting from adrenal insufficiency.

Weight loss: As a consequence of metabolic disturbances and hormonal imbalances.

Cold intolerance: Due to decreased thyroid hormone levels.

Decreased libido: Resulting from gonadotropin deficiencies.

Hypoglycemia: Low blood sugar levels due to decreased growth hormone and adrenal function.

DIAGNOSIS

Clinical evaluation: Assessing the patient's medical history, including childbirth history, and conducting a thorough physical examination to identify signs and symptoms suggestive of pituitary dysfunction.

Laboratory tests: Blood tests to measure hormone levels, including thyroid-stimulating hormone (TSH), adrenocorticotropic hormone (ACTH), growth hormone (GH), follicle-stimulating hormone (FSH), luteinizing hormone (LH), prolactin, and cortisol levels. Hormonal deficiencies or imbalances can indicate pituitary dysfunction.

Dynamic function tests: These tests assess the pituitary gland's ability to respond to stimuli by measuring hormone levels before and after stimulation. Examples include the insulin tolerance test (ITT) to assess growth hormone and cortisol secretion, and the gonadotropin-releasing hormone (GnRH) stimulation test to evaluate gonadotropin secretion.

Imaging studies: Magnetic resonance imaging (MRI) of the brain is the preferred imaging modality to visualize the pituitary gland and assess for structural abnormalities or pituitary infarction.

Other investigations: Additional tests may be conducted to evaluate specific organ functions affected by hormonal deficiencies, such as bone densitometry for assessing bone health in cases of growth hormone deficiency.

TREATMENT

Hormone replacement therapy:

Glucocorticoid replacement: Administered to address adrenal insufficiency and prevent adrenal crisis. Commonly

prescribed glucocorticoids include hydrocortisone, prednisone, or dexamethasone.

Thyroid hormone replacement: Levothyroxine is typically prescribed to correct hypothyroidism and restore thyroid hormone levels to normal.

Growth hormone replacement: Recombinant human growth hormone (rhGH) may be administered to address growth hormone deficiency and improve growth, body composition, and metabolic function.

Sex hormone replacement: Estrogen and progesterone replacement therapy may be prescribed in women to address gonadotropin deficiencies and alleviate symptoms such as amenorrhea and vaginal dryness.

Prolactin modulation:

Dopamine agonists (e.g., bromocriptine, cabergoline) may be used to suppress prolactin secretion in cases of hyperprolactinemia and alleviate symptoms such as galactorrhea.

Symptomatic treatment:

Symptomatic management of associated conditions, such as hypotension, hypoglycemia, and osteoporosis, may be necessary.

Regular monitoring:

Close monitoring of hormone levels, clinical symptoms, and response to treatment is essential to adjust hormone replacement dosages and optimize patient outcomes.

Patient education:

Patients should receive education on the importance of medication adherence, recognition of signs of adrenal crisis, and strategies for managing stress and illness.

CONCLUSION

In conclusion, Sheehan syndrome represents a significant endocrine disorder characterized by pituitary gland dysfunction secondary to ischemic necrosis, typically following severe postpartum hemorrhage. The condition manifests with diverse hormonal deficiencies, leading to various clinical symptoms and systemic manifestations. Early recognition and diagnosis are crucial for prompt initiation of hormone replacement therapy, aimed at restoring hormonal balance and improving patient outcomes. Despite its rarity, Sheehan syndrome poses considerable morbidity and necessitates long-term monitoring and management to prevent complications and optimize quality of life. Further research into its epidemiology, pathophysiology, and therapeutic

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approaches is warranted to enhance our understanding and improve clinical care for affected individuals. Through collaborative efforts among healthcare providers and continued education, we can strive to enhance awareness, early detection, and effective management of Sheehan syndrome in clinical practice.

References:

[1] Robbins and Cotran Pathologic Basis of Disease by Vinay Kumar; Abul K. Abbas; Nelson Fausto; Jon C. Aster
[2] Melmed, S. (2016). Williams Textbook of Endocrinology. Elsevier.
[3] Stewart, P. M., & Krone, N. P. (2016). Hypopituitarism. The Lancet, 388(10058), 2403-2415.
[4] Ferri, F. F. (Ed.). (2021). Ferri's Clinical Advisor 2021: 5 Books in 1. Elsevier.
[5] National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). (2020). Hypopituitarism. Retrieved from https://www.niddk.nih.gov/health-information/endocrine-diseases/hypopituitarism
[6] Mayo Clinic. (2022). Sheehan Syndrome. Retrieved from https://www.mayoclinic.org/diseases-conditions/sheehans-syndrome/symptoms-causes/syc-20374587