

# Hypoparathyroidism: understanding the consequences of parathyroid dysfunction.

Farzad Borumandi\*

Department of Oral and Maxillofacial Surgery, Spitalfield Ln, UK

## Introduction

The human body is an intricately designed machine, with various systems working in unison to maintain optimal health and well-being. Among the unsung heroes in this symphony of biological processes are the parathyroid glands. These four tiny, rice-grain-sized glands, nestled behind the thyroid, play a pivotal role in maintaining calcium balance in the body. However, when the parathyroid glands falter and hypoparathyroidism ensues, the consequences can be significant and life-altering.

### *The parathyroid glands: calcium's guardians*

To understand the implications of hypoparathyroidism, we first need to appreciate the vital role that parathyroid glands play in our physiology. The parathyroid glands are responsible for secreting parathyroid hormone (PTH), which acts as a primary regulator of calcium levels in the bloodstream. When calcium levels drop, the parathyroid glands spring into action, signaling the release of calcium from the bones, increasing calcium absorption from the intestines, and promoting the retention of calcium by the kidneys.

In essence, PTH keeps calcium levels in the body within a narrow range, crucial for various physiological functions. This delicate balance maintains muscle and nerve function, blood clotting, and bone health.

### *Hypoparathyroidism: a disruption of balance*

Hypoparathyroidism is a rare medical condition characterized by insufficient PTH production or activity. This disruption in the parathyroid's regulatory function leads to lower calcium levels in the blood (hypocalcemia) and higher phosphate levels (hyperphosphatemia).

### *The consequences of hypoparathyroidism are profound and extend to virtually every system in the body*

**Neuromuscular symptoms:** Neuromuscular manifestations are among the most noticeable signs of hypoparathyroidism. These can include muscle cramps, spasms, tingling, numbness, and even seizures. In severe cases, hypocalcemia can lead to life-threatening tetany.

**Cardiovascular effects:** Hypocalcemia can disrupt the heart's rhythm, potentially leading to arrhythmias, which can have severe consequences for cardiovascular health.

**Cognitive and mood changes:** Hypocalcemia may result in mood changes, depression, anxiety, and cognitive impairments. These neuropsychiatric symptoms can significantly affect a person's quality of life.

**Renal complications:** Increased phosphate levels can lead to the formation of calcium phosphate crystals in the kidneys, potentially causing kidney stones and impairing kidney function.

**Bone health:** Chronic hypocalcemia can weaken bones, increasing the risk of fractures and bone pain.

**Ophthalmic Issues:** Cataracts and other eye problems may be more common in individuals with hypoparathyroidism.

## Management and treatment

While there is currently no cure for hypoparathyroidism, it can be managed with medical treatment. The primary goal of treatment is to restore and maintain normal calcium and phosphate levels in the body. This is often achieved through calcium and vitamin D supplementation.

Research into hypoparathyroidism is ongoing, and emerging therapies, such as PTH replacement therapy, are showing promise in providing more targeted and effective treatment options.

## Conclusion

Hypoparathyroidism shines a spotlight on the often-overlooked parathyroid glands and their essential role in maintaining calcium balance in the body. When these tiny regulators malfunction, the consequences are significant, affecting virtually every system and aspect of a person's life. Early diagnosis, careful management, and ongoing research hold the promise of improving the quality of life for individuals living with hypoparathyroidism and advancing our understanding of these remarkable glands.

## References

1. Shoback DM, Bilezikian JP, Costa AG, et al. Presentation of hypoparathyroidism: etiologies and clinical features. *The J Clin Endocr.* 2016 Jun 1;101(6):2300-12.
2. Bilezikian JP. Hypoparathyroidism. *J Clin Endocr.* 2020;105(6):1722-36.
3. Mannstadt M, Bilezikian JP, Thakker RV, et al. Hypoparathyroidism. *Nat Rev Dis.* 2017;3(1):1-21.

\*Correspondence to: Borumandi F, Department of Oral and Maxillofacial Surgery, Spitalfield Ln, UK, E-mail: farzadborumandi20@nhs.net

Received: 29-Sep-2023, Manuscript No. AAJ CER-23-119033; Editor assigned: 03-Oct-2023, PreQC No. AAJ CER-23-119033(PQ); Reviewed: 17-Oct-2023, QC No AAJ CER-23-119033; Revised: 23-Oct-2023, Manuscript No. AAJ CER-23-119033(R); Published: 30-Oct-2023, DOI:10.35841/ajcer-6.5.169

4. Hakami Y, Khan A. Hypoparathyroidism. Parathyroid Disorders. 2019;51:109-26.

5. Shoback D. Hypoparathyroidism. N Engl J Med. 2008;359(4):391-403.

**Citation:** Kumar V. Hypoparathyroidism: understanding the consequences of parathyroid dysfunction. *J Clin Endocrinol Res.* 2023;6(5):169