Letter to the editor

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Using low-dose octreotide with diazoxide-resistant congenital hyperinsulinism resulting from compound heterozygous mutations in the *ABCC8* gene

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Highlights

- Our study explores the complexities of congenital hyperinsulinism with ineffective diazoxide treatment. It emphasizes the genetic aspects and challenges in therapy, highlighting the delicate balance between treatment effectiveness, proper dosage with the shift to octreotide, and the unexpected occurrence of severe obesity. This prompts a broader examination of metabolic responses in managing congenital hyperinsulinism.

To the editor,

I trust this letter finds you well. I am writing as one of the authors of the recently published case report, "Long-term follow-up of a full-term Korean female infant with diazoxide-unresponsive congenital hyperinsulinism resulting from an *ABCC8* gene mutation," to expand on the nuanced facets of our findings and to provide a more comprehensive understanding of the challenges presented by this rare disorder.

Congenital hyperinsulinism (CHI), though rare, is the most common cause of persistent hypoglycemia in neonates and infants. Our case report focused on an infant with diazoxide-unresponsive CHI attributed to an *ABCC8* gene mutation, underscoring the complexity of this condition. Despite being a rare disorder, CHI demands attention due to its potential to cause serious neurologic damage and death.[1)]

In our case, the infant, a 2-day-old female delivered via c-section at 38 weeks and weighing 4,780 g, exhibited signs of hypoglycemia with a blood sugar level of 20 mg/dL.[2)] Subsequent serum evaluations revealed elevated insulin and C-peptide levels, indicative of dysregulated insulin secretion.[3)] Genetic and metabolic tests were recommended to discern the underlying cause, but the parents initially refused. The patient's hypoglycemia was managed through frequent feeding until the age of 9 months when corn starch supplementation became necessary.[4)]

At 13 months, the patient experienced a hypoglycemic seizure, leading to her admission to the emergency room. This event prompted a comprehensive evaluation, including a glucagon stimulation test that yielded positive results, pointing toward hyperinsulinemic hypoglycemia.[4)] Subsequent genetic analysis, which was initially declined by the parents, revealed a compound heterozygous mutation in the *ABCC8* gene, emphasizing the genetic complexity associated with CHI.

The ensuing treatment journey was marked by the challenges of managing diazoxide-unresponsive CHI. Initial attempts with diazoxide were futile, leading to a change to octreotide, a somatostatin analog known for its inhibitory effects on insulin secretion.[5)] While the patient responded to octreotide, maintaining stable blood sugar level was complicated by the unexpected development of severe obesity.

This brings us to a critical juncture in the discussion—the interplay between octreotide treatment, dosage considerations, and severe obesity. Octreotide, recommended for managing insulin resistance in certain patient populations, accompanies questions about its dosage in the

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context of CHI. The patient's response to incremental dosage adjustments offers insights into a balance between therapeutic efficacy and risk of exacerbating obesity.

A comparative analysis with similar cases reported in the literature, especially those involving diazoxide-unresponsive CHI with diverse genetic mutations, would enrich our understanding. The intricate relationships between genetic variations and treatment outcomes could inform personalized therapeutic approaches.

Furthermore, the unexpected severe obesity in our patient prompts contemplation on the broader implications for managing hypoglycemia in the context of a delicate metabolic equilibrium. The observed obesity raises questions about whether it is an isolated outcome or part of a broader spectrum of metabolic responses to CHI and its treatment.

In conclusion, our case report adds a significant piece to the puzzle of CHI, emphasizing the genetic diversity and treatment challenges associated with diazoxide-unresponsive cases. By delving into the complexities of octreotide treatment, dosage considerations, and related severe obesity, we hope to spur further research and discussions on therapeutic strategies for CHI.

Notes

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