Three-Minute Article for Parents

GDF15 molecule is responsible for low body mass index in children with thalassaemia

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β-Thalassaemia is a disorder of blood cells that leads to increased breakdown of red blood cells. As a result, patients with β-thalassaemia major require blood transfusions monthly for their survival. These patients also have many complications related to anaemia and excess iron deposition. Many have poor growth, short stature, and low body mass index (BMI).

We conducted a cross-sectional study among 103 patients with β-thalassaemia to examine the relationships between Growth Differentiation Factor 15 (GDF15) levels and anthropometric measurements[1]. The study was conducted at the Thalassaemia Centre of Colombo North Teaching Hospital, Ragama, in 2021. GDF15 levels were measured in a collaborating research laboratory in Cambridge, UK.

This study found that GDF15 levels are markedly elevated (24-fold) in β-thalassaemia major patients compared to healthy controls. Among β-thalassaemia major patients, high GDF15 levels had a significant negative association with BMI. Specifically, individuals with GDF15 levels above 24,000pg/mL always had a BMI below 20kg/m^2. Similarly, all patients with BMI over 21kg/m^2 had GDF15 levels less than 22,000pg/mL.

Our findings support the other ongoing research studies that evaluate the role of GDF15 in the human body. Previous research suggests that GDF15 suppresses food intake and body weight by acting at the satiety-controlling area of the brain. Our results support the theory that GDF15 influences food intake, fat levels and BMI in children with β-thalassaemia.

Although our study identified that GDF15 plays a significant role in mediating the low BMI in children with β-thalassaemia, we currently do not have a medication or a mechanism to block the effect of this molecule. Therefore, all parents of children with β-thalassaemia should pay extra attention to the nutrition of their children and provide a well-balanced diet throughout.

However, we should also remember that children with thalassaemia should not be given high-iron-containing food like red meat and red fish.

References

1. Karusheva Y, Petry CJ, Yasara N, Kottahachchi D, Premawardhena A, Barker P, Burling K, Sattar N, Paul Welsh P, Mettananda S, O'Rahilly S. Association of GDF15 levels with body mass index and endocrine status in β-Thalassaemia. *Clinical Endocrinology* 2023; **99**(2): 182-9.