GROWTH HORMONE DEFICIENCY IN IDENTICAL TWINS WITH GITELMAN SYNDROME DUE TO COMPOUND HETEROZYGOUS MUTATION (p.R80fs*35/p.K957X) IN THE SLC12A3 GENE AND RESPONSE TO GROWTH HORMONE REPLACEMENT THERAPY

Betül Yaman[1], Kübra Çeleğen[2], Emine Korkmaz[2], Naz Güleray Lafçı[3], Zeynep Balık[4], Nesrin Taş[2], Hüseyin Demirbilek[1], Ali Düzova[2]
[1]Hacettepe University Faculty of Medicine, Department of Pediatric Endocrinology
[2]Hacettepe University Faculty of Medicine, Department of Pediatric Nephrology
[3]Hacettepe University Faculty of Medicine, Department of Genetic
[4]Hacettepe University Faculty of Medicine, Department of Pediatrics

Gitelman syndrome, a rare autosomal recessive disorder, is characterised with hypokalemic metabolic alkalosis, hypomagnesemia and hypocalciuria. Mutations in the *SLC12A3* gene, which encodes for "Thiazid sensitive sodium chloride co-transporter channels" located at the renal distal convoluted tubules, account for the underlying molecular mechanism of Gitelmann syndrome. Although, is less frequent than those seen in "Bartter Syndrome", the exact mechanism of growth retardation in Gitelman syndrome has not been elucidated. We, herein, present two identical twins, with the diagnosis of Gitelman syndrome, due to a compound heterozygous mutation in *SLC12A3*, associated with GH deficiency and the response to the rhGH therapy.

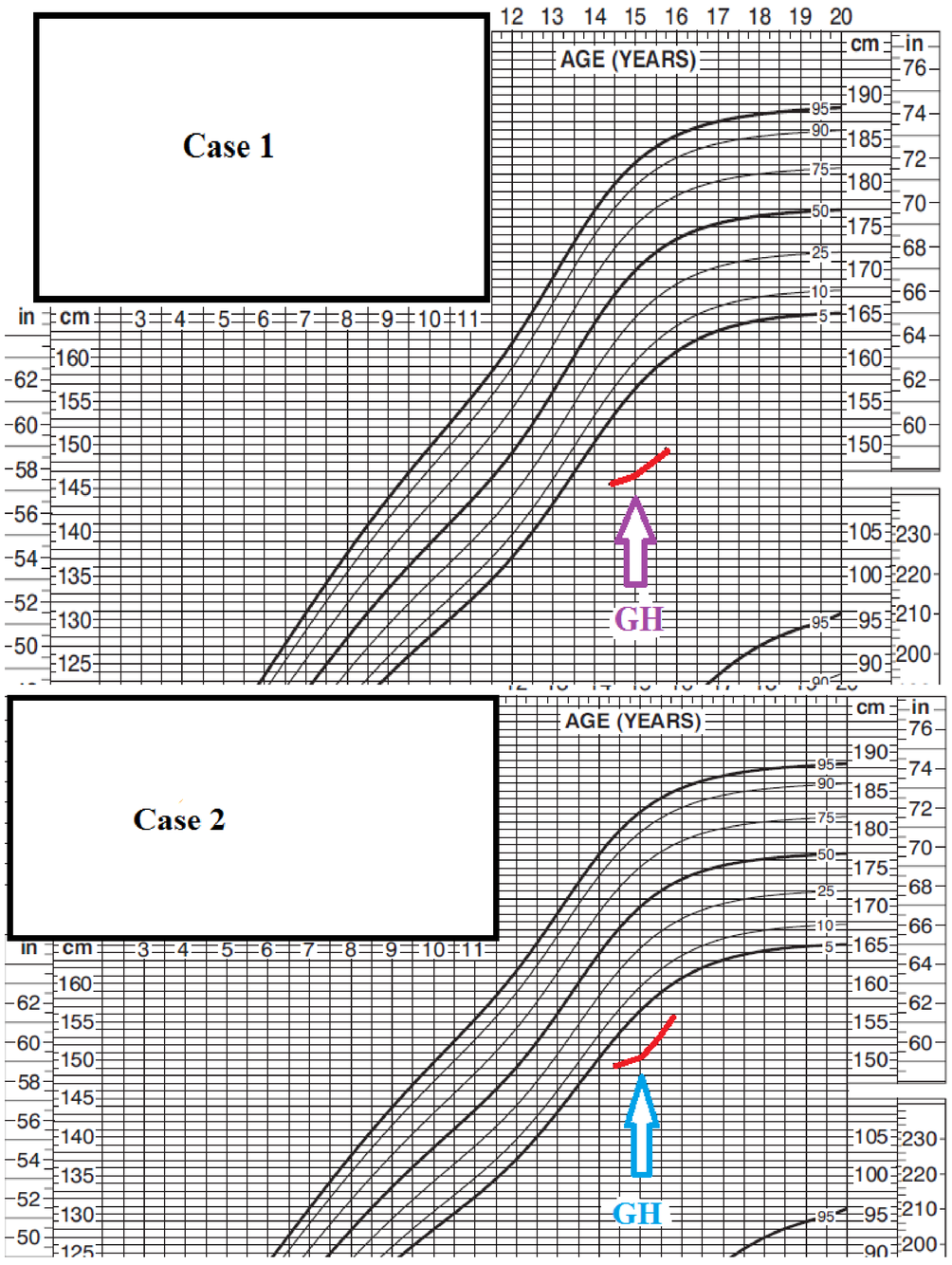
CASE

Male twins
>>> Short sature >>> Noticed about the age of 8-10 years
>>> History: Replacement therapy for hypomagnesemia and hypokalemia

Na:137/137 mEq/l
K:1.99/2.38 mEq/l
pH:7.47/7.47
HCO3:36.2/39.4mMol/l
Mg:1.19mg/dl/1.47
U-Ca/U-creatinin:0.05/0.05

Gitelman Syndrome

Clinical and laboratory values of the cases		
	Case 1	Case 2
Age at presentation	14.4	14.4
Weight (kg)	32.7	35.5
Height (cm)	145.5(-2.88 SD)	149.2(-2.39 SD)
Testicular volume(ml)	4/4-6/6	4/6-8/8
Bone Age (years)	10	13
IGF1 (ng/ml)	80.7 (-2.41 SD)	110.7(-2.06 SD)
IGFBP3 (ng/ml)	2219(-2.31 SD)	2124(-2.37 SD)
Growth rate (cm/years)	1.6	3.2
L-Dopa test peak GH (ng/ml)	4.6	0.09
Clonidine test peak GH (ng/ml)	4.32 (Priming with sex steroid)	0.716
GH dose(mg/day)	0.033	0.033
Growth rate with GH therapy (cm/year)	5.1	6.9
IGF1(Under GH therapy) (ng/ml)	293.4	296.0
Mutation analysis of *SLC12A3*	p.R80fs*35/p.K957X	p.R80fs*35/p.K957X



Pituitary MRI and other pituitary hormones were normal for both cases

Partial response to the GH replacement therapy

- ❖ Poor compliance to the therapy
- ❖Frequent hospital admissions due to recurrent episodes of electrolyte imbalance

CONCLUSION

Gitelmann syndrome patients with short stature should be investigated for GH-IGF-1 axis disturbances. For an optimal growth, in addition to correcting serum potassium levels, GH replacement may be considered. However, in order to further evaluate the response to GH replacement therapy, more experiences are required.

57ESPE 237--P3
Growth and syndromes (to include Turner syndrome)
Huseyin Demirbilek
Poster presented at: 57th ESPE 2018 Meeting ATHENS GREECE 27-29 September 2018
PosterSessionOnline.com