Congenital hypopituitarism and severe developmental delay associated with homozygous POU1F1 mutation

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Background

Mutations in POU1F1 is a rare cause of combined pituitary hormone deficiency, which commonly includes GH, TSH and prolactin deficiencies and characterized by hypoplastic anterior pituitary

Clinical case:

1.5 year old girl was admitted to our hospital because of short stature

- Consanguineous healthy parents
- Birth length 47 cm, birth weight 2220 g
- Psycho-motor delay were noted during first months of life
- Had severe developmental delay
- Central hypothyroidism was diagnosed at 2 months of age and started on Levothyroxine

Age 1.5 years
- Height 58 cm (SDS -7.3)
- Weight 3.8 kg (BMI SDS -7.4)

Laboratory testing revealed:

Asymptomatic ketotic hypoglycemia

IGF-1 3 ng/ml
Prolactin <30 mU/l

“Hypopituitarism panel” genes were sequenced using a custom Ion Ampliseq gene panel and PGM semiconductor sequencer (Ion Torrent) Homozygous R256W mutation in POU1F1 gene

The girl was started on GH therapy and carbohydrate rich diet

Age 2 years:
- Height 67 cm (SDS -4.98)
- Weight 5.5 kg (BMI SDS -5.9)
- She showed some improvement in psychomotor development

Conclusion:

POU1F1 mutations is a rare cause of hypopituitarism, which may present with failure to thrive and extremely short stature, showing a good response to GH therapy. Severe developmental delay, seen in our case, may be a result of untreated neonatal hypoglycemia, hypothyroidism or be a part of a syndrome.