OBJECTIVES

Hypophosphatemic rickets (HR) belongs to a heterogeneous group of rare diseases which are caused by phosphate deregulation due to excessive renal phosphate wasting. The most common form is X-linked hypophosphatemic rickets (XLHR), OMIM #131100, caused by mutations in the PHEX gene (OMIM #300550). Phosphate regulating gene with homology to neutral endopeptidases 13 (PHEX) is a transmembrane endopeptidase involved in phosphate metabolism and bone mineralization. There is also, among others, autosomal dominant hypophosphatemic rickets (ADHR, OMIM #193100) caused by mutations in the gene encoding fibroblast growth factor 23 (FGF23) (OMIM #600380) and autosomal recessive hypophosphatemic rickets caused by mutations in DMP1 gene.

CONCLUSIONS

The early diagnosis of XLHR is very important for proper treatment and to prevent severe bone deformities and improve final height.

METHODS AND RESULTS

DNA was isolated from fresh blood and all exons of PHEX gene were amplified using PCR and directly sequenced.

The dominant clinical sign in both patients was bowing of legs (genu varum in a boy and genu valgum in a girl). Short stature, predominantly affecting the brother, and lumbar hyperlordosis were also observed. Short stature and genu varum were also seen in affected mother. The difference in height was probably due to the time of treatment introduction, as it was initiated in the girl in the infantile period before the clinical signs appeared. In both patients a novel c.1483-1G>A mutation in intron 13 was identified. This mutation was also present in the affected mother leading to changes in the transcription of the RNA.

References

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