LETTERS

Severe renal osteodystrophy in early infancy

Dear Editor,

Renal osteodystrophy (RO) is a severe multifactorial disorder of bone and mineral metabolism in children with chronic kidney disease (CKD)[1]. We present a rare case of severe RO in a 13-month-old infant with fractures of bilateral tibias, although he had been standing up for only three months.

Patient was born at 36 weeks' gestation, after Caesarean section, because of prenatal diagnosis of bilateral hydronephrosis and oligohydramnios. Antenatal imaging showed bilateral gross hydronephrotic, dysplastic kidneys and severe ureterectasis, associated with 5th grade vesicoureteric reflux bilateral and significantly impaired renal function with stasis of contrast media, due to possible obstruction of the ureteropelvic junction. Until the age of 4 months the child underwent a number of surgical procedures including nephrostomy and cystostomy. At that age he had an estimated glomerular filtration rate (eGFR) of 20 ml/min/1.73m^2 associated with CKD metabolic disturbances and intact Parathyroid hormone (PTH) of 992 pg/ml. From that age till 12 months, there was no nephrological follow up and the compliance with any suggested medication treatment was poor. At 12 months, when patient was readmitted in order to undergo pyeloplasty, deformities of upper and lower extremities were noted. Both his weight and height were below 3rd centile. X-rays revealed diffuse osteopenia of the long bones with multiple fractures of femurs, tibias and fibulas (Figure 1a) and pronounced osteopenia of vertebral bodies suggesting a diagnosis of severe RO. The laboratory findings revealed eGFR: 10 ml/min/1.73m^2, hemoglobin: 10 gr/dl, intact PTH: 956 pg/ml, 25-hydroxyvitamin D: 18 ng/ml, urea: 123 mg/dl, creatinine: 2.5 mg/dl, Phosphorus: 8.2 mg/dl, Calcium: 6.9 mg/dl, alkaline phosphatase: 489 iu/ml and metadolic acidosis. Treatment with oral bicarbonates, erythropoietin (100 i.u/Kg), 1-alpha-calcidiol (0.12 mg/kg), calcium supplementation (30 mg/kg), calcium carbonate as well as peritoneal dialysis were initiated. Three months later the child was standing up again, his PTH was 158 pg/ml and twelve months later an impressive improvement of his skeletal deformities was noted (Figure 1b).

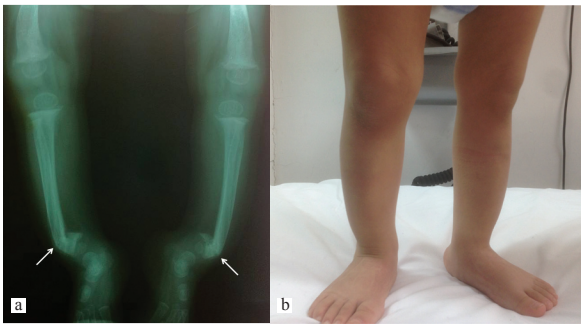

Figure 1: a) Osteopenia, multiple fractures of tibias and fibulas metaphyses (arrows), sharp angulation in these areas and angulation of both radius metaphyses due to foregoing fractures; b) Improvement of his skeletal deformities.

It is not known, either what is the exact time that RO occurs in CKD children, or what level must be the amounts of phosphorus, calcium, vitamin-D and PTH that can cause RO earlier[2]. Increased intact PTH which indicates a high bone turnover, in combination with the rapid increase of bones in that age, partially could explain the early appearance of severe RO in our child[3]. RO may have dramatic clinical presentation even in infancy. However bone plasticity of that age allows reversibility these deformities.

References

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Conflict of interest

None.

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