Acetazolamide treatment in a patient with pseudohypoparathyroidism with venous calcification

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A 11.7±0.2 years old female patient presented with short stature, fatigue and exercise-induced carpopedal spasms.

Diagnosis of PHP-1A was made based on hypocalcemia (5.4 mg/dl, N:8.8-10.8 mg/dL), hyperphosphatemia (2.2 mg/dl, N:3.3-5.4 mg/dL), elevated serum PTH (460 ng/L, N:15-65 ng/L) and AHO features and calcifications in the basal ganglia.

Her height was 127.6 cm (-3.37 SDS)

Weight was 30 kg (-1.81 SDS)

The patient was treated with IV and oral calcium and calcitriol.

During intravenous calcium therapy, extravasation of calcium occurred in left forearm and a small hematoma developed in the right antecubital area after phlebotomy.

Three weeks later on follow-up examination, a palpable rigidity was detected along the extravasated vascular path on the left arm and a 2x1 cm solid nodule was palpable in the location of hematoma in the right antecubital area. X-ray of the arms demonstrated calcification in these areas.

Venous doppler ultrasound examination was consistent with thrombophlebitis and intravascular calcifications in both arms.

The patient was treated with antibiotics and low molecular weight heparin (LMWH) for thrombophlebitis.

Acetazolamide (25 mg/kg/day) was started for calcifications which created mild metabolic acidosis (pH:7.30-7.35).

LMWH was discontinued on 6 months and acetazolamide treatment was discontinued at 8 months of treatment when calcifications in both arms disappeared completely.

No adverse effects were observed during treatment.

Maternally inherited p.Arg999Thrfs*47 heterozygous mutation was detected in the GNAS gene.

Figure 1. a. Subcutaneous calcification in right antecubital area and intravascular calcifications in left arm with X-ray, b. Subcutaneous calcification in right antecubital area, c. Intravascular calcifications in left arm, d,e. Intravascular calcifications and venous thrombosis with doppler ultrasonography

Figure 2 X-ray and doppler ultrasonography examinations after LMWH and acetazolamide treatment

Learning points

- Acetazolamide, a carbonic anhydrase inhibitor, causes metabolic acidosis by increasing bicarbonate excretion from the proximal renal tubule thereby diminish precipitation of calcium and phosphorus.
- Acetazolamide had been used for soft tissue calcifications in tumoral calcinosis cases, however not used in PHP-1A and vascular calcification previously.
- This case represents the first successful use of Acetazolamide for soft tissue and vascular calcifications in PHP and provides new insights for treatment of ectopic and vascular calcifications in PHP.