Familial glucocorticoid deficiency (FGD): masked diagnosis by hydrocortisone life-saving treatment.

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Background: Familial Glucocorticoid Deficiency (FGD) is a rare and potentially life-threatening disease, characterized by adrenal insufficiency without mineralocorticoid deficiency. It is diagnosed during the neonatal period but also in childhood. Manifestations are recurrent hypoglycemia, seizures or even coma, chronic fatigue, recurrent infections and skin hyperpigmentation. Mutations on mineralocorticoid receptor 2 (MC2R) gene and on melanocortin− 2 receptor accessory protein (MRAP) gene have been described in 25% and 15-20% of cases respectively.

Case Report :

We report a girl, second child of (probably) related Pakistani parents, with previous unremarkable pathological history. She was evaluated at 2.3 years of age for severe drowsiness (GCS < 8), **ketotic hypoglycaemia** (1 mmol/l), hypotension, developed in course of febrile gastroenteritis. Hyperpigmentation was not recognized.

Euglycemia was restored with i.v glucose and bolus of hydrocortisone. Cerebral infarction, poisoning, infectious encephalopathy, hyperinsulinism were excluded. Reduced serum cortisol (12 ng / ml) and ACTH levels were considered unreliable due to hydrocortisone treatment. Dexamethasone was early started for cerebral edema and continued for laryngeal edema, due to intubation. The child fully recovered and corticosteroid was tapered. The subsequent endocrine studies showed serum **cortisol < 2 ng / ml**, **ACTH > 1250 pg / ml**, with normal renin, aldosterone and electrolytes; FGD was suspected and the patient started regular treatment with hydrocortisone. Adrenal hypoplasia and Allgrove syndrome were excluded.

Molecular analysis of MC2R gene showed a novel mutation (L283R) in homozygosis (confirmed in both parents).

Conclusion:

Our case confirms that FGD is a rare cause of adrenal insufficiency in some cases triggered by infection. Corticosteroid treatment did not allow us to early reach the diagnosis, but saved the child. We suggest, in the case of pediatric ketotic hypoglycemia, to collect few ml of plasma for adrenal function evaluation, and then consider to promptly start corticosteroid treatment