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Titre:

Congenital hyperinsulinism due to a new mutation in the gene ABCC8.

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We report the case of a newborn with neonatal hypoglycemia due to congenital hyperinsulinism (CHI) caused by a new variant in the *ABCC8* gene.

A 11-day-old newborn boy was referred to our Neonatal Intensive Care Unit for repetitive symptomatic hypoglycemia. His gestational age was 37 weeks 5/7. He presented intra-uterine growth restriction (IUGR) with a birth weight of 2160 g (-2.45SD), length 44 cm, (-2.56SD) and head circumference 33 cm (-0.74SD). IUGR was related to drug use during pregnancy. Clinical examination was normal. No dysmorphic feature was noted.

Parents were non-consanguineous. Familial history was without particularity.

At day 11, he presented drowsiness and tremors. Blood sugar measurement revealed hypoglycemia (38 mg/dl). Insulin blood level measured at the time of hypoglycemia was not suppressed (insulin 3.4 mUI/L; *n:*3-25 mUI/L). Cortisol (22.1 µg/dL) and GH (5.4 µg/L) responses were satisfactory. Ketonuria was negative. A second sample showed glycemia at 34 mg/dl with insulin measurable at 5 mUI/L. Glucagon test was positive with a rise in glycemia of 40 mg/dl. Cardiac and abdominal ultrasounds were normal.

Those biological values led to a diagnosis of HI. Despite a very high glucose infusion rate (20 g/kg/d) through continuous enteral feeding and intravenous infusion of glucose 10%, he repeated hypoglycemia. Treatment with diazoxide was started (from 10 to 20 mg/kg/d). Because hypoglycemia persisted, octreotide was added with a dose increased up to 35µg/kg/day (initially subcutaneous infusion every 6 hours and then continuous subcutaneous infusion with insulin pump). In parallel, intravenous infusion was stopped and enteral continuous feeding was gradually decreased.

Genetic analysis revealed a new mutation in the *ABCC8* gene. Maternal genetic study was normal. Paternal DNA was not available. Fluorine 18-L-3,4 Dihydroxyphenylalanine Positron Emission Tomography (18F-DOPA-PET/CT scan) reported a focal lesion at the isthmus of the pancreas which has been removed by laparoscopic surgery leading to complete recovery.

CHI represents the most frequent cause of persistent hypoglycemia in newborn. Management of those patients remains a challenge. Genetic analysis and 18F-DOPA-PET/CT scan help differentiate focal and diffuse forms, and select patients for which a curative surgical management can be proposed. Before that, the goal of the treatment is to achieve normal glycemia to prevent neurological damages secondary to hypoglycemia.