Neonatal diabetes and congenital hypothyroidism, a rare condition: report of 2 cases with different genetic causes

Carolina Mendoza, Carolina Garfias, Cristian Seiltgens, Sarah Flanagan, Sian Ellard, Francisca Ugartet, Ricardo Silvar, Isabel Hodgson, Hernan Garcia

INTRODUCTION

• Neonatal diabetes (ND) is a rare monogenic form of diabetes characterized by the onset of hyperglycemia within the first six months of life. ND can be transient (TND) or permanent (PND).
• The most frequent causes are mutations in KCNJ11, ABCC8 and insulin gene. Up to 40% of patients with ND remain without a genetic diagnosis.
• A specific molecular diagnosis has important clinical consequences for appropriate treatment, associated conditions, prognosis and genetic counseling.

METHODS

• We describe two clinical cases of neonatal diabetes and congenital hypothyroidism.
• Clinical characteristics in table 1, laboratory and imaging tests in table 2.

RESULTS

• Molecular tests were performed at Molecular Genetics Laboratory, University of Exeter Medical School, Exeter, UK.
• Mutations in KCNJ11, ABCC8 and INS genes were excluded.
• Sequence analysis identified a novel de novo heterozygous STAT3 missense mutation p.Gln643 Arg (c.1926A>G) in case 1 and a heterozygous GATA6 mutation p.Cys447Arg (c.1339C>T) in case 2.
• Both cases were managed with basal bolus-insulin therapy.

CONCLUSIONS

• We present two cases of neonatal diabetes associated with congenital hypothyroidism.
• GATA6 mutation is a known cause of permanent ND due to pancreatic agenesis associated with congenital hypothyroidism.
• Mutations in STAT3 have been recently associated with early-onset autoimmune disease including enteropathy, primary hypothyroidism, fibrotic lung disease, juvenile arthritis and ND.
• A specific molecular diagnosis has important clinical consequences as it may influence diabetes treatment and prognosis.

REFERENCES