An infant with a novel Kir6.2 mutation causing neonatal diabetes and unexplained lack of response to sulphonylurea

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BACKGROUND

- Neonatal diabetes (NDM) is defined as diabetes developing before 6 months of age. Incidence 1 in 100,000 live births.
- Permanent NDM (PNDM) is diagnosed in the first six months of life with no remission.
- The majority have a mutation in the ATP-sensitive potassium (KATP) channel (KCNJ11 in 31%, ABCB8 in 13%).
- Autosomal dominant and recessive forms are described.
- The majority of patients with NDM caused by KATP mutations respond to sulphonylureas.

OBJECTIVES

To describe response to sulphonylurea in an infant with NDM heterozygous for a novel KCNJ11 missense de novo mutation (W68G) and use of in vitro studies of sulphonylurea response to guide treatment.

CASE HISTORY

- A girl born at 37 weeks gestation. Severe intrauterine growth retardation.
- Mother Irish, father Sikh Indian
- Birth weight 1.95kg (<0.4th centile)
- Hyperglycaemia noted on day one of life
- Initially treated with subcutaneous insulin which was difficult due to size of infant and erratic glycaemic control.
- Novel KCNJ11 missense de novo mutation (W68G) diagnosed within 2 weeks.
- Glibenclamide commenced on day 20 of life. Dose slowly increased but failed to respond to dose 1mg/kg/day. Meanwhile, insulin pump commenced 2 months of life.

RESULTS

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