GDH-HI

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Too much ATP – too much insulin

Signaling effect of amino acids amplify insulin secretion
Presentation

• Late onset

• Low sugars after food

• Fasting hypoglycaemia

• Convulsions, learning difficulties
Adverse Neurodevelopment

• Hypoglycaemia related?

• Direct consequence of GDH enzyme on brain supporting nerve cells (glial cells)? *Komlos et al, Glia 2013*

• Loss of protective neurotransmitter (glutamate) in brain
Patient Stories

- D – 2 year old girl with recurrent hypoglycaemia and seizures
- Ketotic response on at least 2 occasions
- Fast results inconclusive
- Diagnosis of hyperinsulinism when admitted with hypoglycaemic seizures
- Normal ammonia levels
Story of D

- GLUD1 mutation positive
- Diazoxide responsive but erratic adherence
- Social concerns
- Relatively good doses of diazoxide (12 mg/kg/day) but no excess body hair
- Delayed development
- Baby brother with no hypoglycaemia at birth
E’s story

• Diagnosed at age 8 years
• Difficult family circumstances, relationships
• Takes own medication at age 15 years
• Issues with school, home
• Vulnerable young person
• What is life as a young adult
Story of siblings with GDH-HI

• First child (6 years) treated with diazoxide at 15 mg/kg/day – excess hair, worried
• Low protein diet – ProZero milk
• Occasional hypoglycaemia
• What next?
• Second child, age 6 months recently diagnosed with GLUD1 mutation