

A Case of raised creatinine in a newborn with Congenital Hyperinsulinism - Diazoxide induced Acute Kidney Injury

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Background

Congenital hyperinsulinism (CHI) is the result of unregulated insulin secretion from the pancreatic β -cells leading to severe hypoglycaemia¹. Diazoxide is effective in virtually all forms of CHI except in those due to recessive (and some dominant) inactivating mutations in ABCC8 and KCNJ11 and in patients with focal CHI². We report a case of CHI with acute kidney injury secondary to diazoxide.

Case presentation

A term male born to non-consanguineous Caucasian parents presented with hypoglycaemia on first day of life. Labetolol was administered during pregnancy for preeclampsia. The dopplers showed absent end diastolic flow. He required up to 17mg/kg/min of intravenous glucose. He had high insulin levels (26 mU/L) whilst hypoglycaemic (2.2 mmol/L). He was commenced on Diazoxide and Chlorothiazide. He was successfully weaned off intravenous glucose on day 8. On day 10, whilst on diazoxide, he had raised creatinine of 153 umol/L. His blood pressure, urine output and weight remained satisfactory. There was no microscopic hamaturia. Renal ultrasound scan was normal. Chlorothiazide was discontinued and he was weaned off diazoxide over the next 4 days. He maintained stable glucose levels and his renal function improve following this intervention.

Discussion

Diazoxide is an antihypertensive antidiuretic benzothiadiazine. It acts on the pancreatic β -cells inhibiting insulin secretion. Tolerance to diazoxide is usually good. Renal side effects are rarely described. Diazoxide is also an arterial vasodilator, and in combination with diuretics, can induce acute changes in renal function with associated tubular sodium avidity³.

Reported renal side effects of diazoxide include azotemia, decreased creatinine clearance, reversible nephritic syndrome and haematuria.

Conclusion

Raised creatinine can occur as a side effect of diazoxide. The half -life in children is 9-24 hr and increases in patients with renal impairment⁴. This case highlights the importance of regular monitoring of renal function in patients with CHI on diazoxide

Table 1 Common medications associated with acute renal injury

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D Choudhury and Z Ahmed (2006) Drug-associated renal dysfunction and injury Nat Clin Pract Neprol 2: 80–91 doi:10.1038/ncpneph0076

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References:

- 1. Senniappan S, Arya VB ,Hussain K. The molecular mechanisms, diagnosis and management of congenital hyperinsulinism. Indian J Endocrinol Metab.2013 Jan:17(1):19-30. doi: 10.4103/2230-8210.107822.
- 2. Arnoux JB¹, Verkarre V, Saint-Martin C, Montravers F, Brassier A, Valayannopoulos V, Brunelle F, Fournet JC, Robert JJ, Aigrain Y, Bellanné-Chantelot C, de Lonlay P. Congenital hyperinsulinism: current trends in diagnosis and therapy. Orphanet J Rare Dis. 2011 Oct 3;6:63. doi: 10.1186/1750-1172-6-63.
- 3. http://www.nature.com/nrneph/journal/v2/n2/full/ncpneph0076.html
- 4. http://www.mhra.gov.uk/home/groups/spcpil/documents/spcpil/con1432880278807.pdf