

Neonatal Hypocalcaemic Seizures associated with Maternal Vitamin D deficiency

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Maternal vitamin D insufficiency is not uncommon. Infants born to such mothers who in addition are breastfed are at risk of developing vitamin D deficiency and hypocalcaemia. We present a case of neonatal hypocalcaemic seizures secondary to vitamin D deficiency.

Rickets in children resulting from Vitamin D deficiency is well documented. It is also becoming clear that there is a positive correlation between maternal vitamin D status during pregnancy and lactation and the development of rickets both in infancy and childhood.¹⁻³The correlation between maternal vitamin D status, neonatal vitamin D status and hypocalcaemia is not well documented. We present a case of neonatal seizures secondary to hypocalcaemia where the only other abnormal findings were low vitamin D levels both in the infant and in the mother.

Case Report

A one week old, full term male infant presented with generalised seizures. He was exclusively breast fed since birth. Both parents were vegetarians. Physical as well as neurological examinations were within normal limits. His parents had recorded the “attacks” by video camera.

Magnetic resonance imaging of the brain was normal. Electroencephalography showed no epileptiform phenomenon.

Laboratory investigations revealed calcium 1.58nmol/L (6.33 mg/dl), 25-hydroxyvitamin D3 7nmol/L (2.69 mg/ml) indicating vitamin D deficiency. Maternal 25-hydroxyvitamin D3 was 11nmol/L (4.23 mg/ml). All other results were normal.

The patient was commenced on alphacalcidol and Calcium supplements and within a few weeks the calcium levels had returned to normal. He remained on alphacalcidol until ten weeks of age and then was changed onto Abidec (Vitamin A, B, C and D supplement). His seizures ceased within a few days of starting treatment.

After 6 months, the baby was doing well, with normal Calcium and Vitamin D levels.

Discussion.

It is well recognised that maternal Vitamin D deficiency during pregnancy and during the period of breastfeeding contributes to the development of rickets in infancy ^{1,2}.

However, neonatal hypocalcaemic seizures as a consequence of maternal vitamin D deficiency is not well described.

It is not uncommon to find vitamin D insufficiency in otherwise, healthy pregnant women.⁴ Infants born to such mothers have reduced umbilical cord blood concentrations of 25-hydroxycholecalciferol.⁵ In addition, breast milk contains only about 1 microgram of vitamin D per litre. This varies according to maternal vitamin D status.⁶

In 1991, the Committee on Medical Aspects of Food Policy recommended that all pregnant and lactating mothers should receive 10 micrograms vitamin D (400 IU) daily.⁷ This policy has not been implemented widely.

Our case illustrates the importance of checking the calcium levels in neonates who present with seizures and in those found to be hypocalcaemic to check their vitamin D status as this is an easily correctable condition.

It could be argued that this case was also preventable had the mother been given Vitamin D supplementation during her pregnancy and during her early lactation. However, given the lack of previous reports in the literature it would appear that neonatal hypocalcaemic seizures is a rare but real presentation of vitamin D deficiency.

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