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Case Report

Unusual Presentation of Hypocalcemic Seizures in a Breast Fed Infant

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Abstract

Hereby is a 2 month old exclusive breast fed infant presented in status epilepticus condition, with cluster of attacks. Child was diagnosed to have hypocalcemia with background of normal parathyroid and vitamin D levels. We hereby report this case because of its unusual presentation of infantile hypocalcemic seizures in an exclusively breast fed infant.

Keywords: Hypocalcemic Seizures, Breast Fed Infant, epilepticus

Introduction

Overall prognosis of infantile seizures depends on the underlying cause. Hypocalcemic seizures has a good prognosis. The infant in this case presented with hypocalcemic seizure activity of unknown etiology.

Case report

A 2 month old male infant 2nd child born of a 3rd degree consanguineous married couple presented to our PICU in status epilepticus (multiple episodes of generalized tonic convulsions involving all limbs, each lasting for about 1 minute with no regain of consciousness in between), refusal to feed, and history of not recognizing mother and loss of social smile for few days . There was no history of fever or otorrhea during this episode.

At age of 6 weeks, there was history of fever and 4-5 episodes of generalized tonic convulsions involving all limbs lasting for about 1 min with normal consciousness in between and no refusal of feeds, after administration of 1st dose of DPT vaccination.

The patient was a full term normal delivery with no antenatal complications and was on exclusive breastfeeding. With uneventful family history and immunized as per NIP. Differential

diagnosis as for metabolic (probably due to hypocalcemia), sepsis (meningitis), encephalopathy following DPT vaccination and IEM was kept.

On examination , vitals and anthropometry were normal . GPE showed pallor ,there were no dysmorphic facies, cataracts, evidence of rickets and no signs of neurocutaneous markers. On CNS examination, there was increased tone and exaggerated reflexes.

Biochemical investigations revealed anemia, normal blood glucose, serum electrolytes and a normal serum albumin (3.4 g/dl), but the serum calcium was low (8.2 mg/dl - Lab refernce value : 9-11 mg/dl), ionised calcium was low (3.4mmol/L) serum phosphorus was high (6.5 mg/dl) and serum alkaline phosphate was high (291 IU/L). The serum magnesium (2.1 mg/ dl), CSF analysis, and cardiac evaluation were all normal. Serum parathyroid hormone revealed a normal level of 34 pg/ml (normal = 12-72 pg/ml). Inborn error of metabolism (IEM) screening was normal. Renal function tests were normal. CT scan showed ill defined confluent hypodensities in bilateral cerebral white matter, predominantly parieto-temporal region with normal myelination pattern due to Post ictal changes with no basal ganglia calcification. The mother's calcium, phosphorus, alkaline phosphatase, parathormone, vitamin D levels, thyroid function tests, blood sugar were normal.

Seizures subsided with intravenous calcium and was seizure free since then. Baby was discharged on oral calcium (200 mg/kg elemental). The patient is now 3 months old and had achieved social smile and was recognizing his mother and is seizure free on calcium supplements.

Discussion

Calcium ions (Ca^{2+}) in cellular and extracellular fluid (ECF) are essential for many biochemical processes. Significant aberrations of serum calcium concentrations are frequently observed in the neonatal and infantile period. Hypocalcemia is defined as a total serum calcium concentration of <7 mg/dL or an ionized calcium concentration of <4 mg/dL (1 mmol/L).[1] Vitamin D deficiency, magnesium deficiency, hypoparathyrodism, pseudohypoparathyroidism, maternal hyperparathyroidism are the common causes for hypocalcemia in infantile period.

There are three definable fractions of calcium in serum: (i) ionized calcium (~50% of serum total calcium); (ii) calcium bound to serum proteins, principally albumin (~40%); and (iii) calcium complexed to serum anions, mostly phosphates, citrate, and sulfates (~10%). Ionized calcium is the only biologically available form of calcium. Assessment of calcium status using ionized calcium is preferred in cases of convulsions.

Hypocalcemia is primarily responsible for the production of the clinical features such as seizures, tetany, paraesthesias or muscle cramps. Children usually present as latent or overt tetany in the form of circumoral and digital paraesthesia, muscle cramps, laryngospasm and carpopedal spasm[2,3]. The acute symptoms may occur more readily under periods of stress, increased demands and states of alkalosis.

The major goal of therapy in all patients irrespective of the etiology is to restore serum calcium and phosphorus as close to normal as possible. Therapy with calcium is usually adequate for most cases. In some cases, concurrent therapy with magnesium is indicated. In an emergency, the acute crisis is tided over with slow intravenous calcium gluconate 1-2 ml/kg (9-18 mg/kg elemental Ca), followed by administration of vitamin D together with an oral calcium intake of 100 mg/kg elemental Calcium in divided doses[4,5].

Rapid intravenous infusion of calcium can cause a sudden elevation of serum calcium level, leading to bradycardia or other dysrhythmias. Intravenous calcium done with careful cardiovascular monitoring. Extravasation of calcium solutions into subcutaneous tissues can cause severe necrosis and subcutaneous calcifications. Calcium gluconate 10% solution is preferred for intravenous use. Calcium glubionate syrup (Neo-Calglucon) is a convenient oral preparation.

Calcium may be supplemeted through dairy products (milk, cheese, yoghurt) or other calcium-rich foods such as seafood (oysters, salmon, sardines), vegetables (broccoli, spinach) and nuts (apricots, dates, almonds).

Conclusion

Hypocalcemic seizures should be kept in mind in any infant presenting with cluster of attacks with periods of normalcy in between even in an exclusive breast fed infant.

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