Neonatal seizures: an emergency condition commonly seen in neonatal intensive care unit

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DESCRIPTION

Cases

A term male baby with an Apgar score of 8/8/9 was admitted to our hospital at 24 h of life with abnormal body movements. The infant had multifocal myoclonic seizures that started in the lower limbs with secondary generalisation to the whole body; this condition was associated with desaturation (video 1). The numerous episodes of seizures required multiple anticonvulsants. MRI of the brain showed a normal study and the infant was discharged on phenobarbitone.

In another case, a 2-day-old term male infant was referred to our hospital in view of respiratory distress and with possible cyanotic heart disease. The baby was diagnosed as a case of Vein of Galen malformation as a head ultrasound showed an echolucent structure in the posterior region of midline, superior to tentorium cerebellum and thalami. This infant had neonatal seizure episodes each of approximately 2 min duration in the form

of cycling movements of the lower limbs associated with tachycardia (video 2). The infant was started on anticonvulsants and there was no recurrence of seizures.

DISCUSSION

Neonatal seizures represent the most specific and distinctive sign of neurological abnormalities in newborns and are the manifestation of many aetiologies,¹ the most common being hypoxic ischaemic encephalopathy, intracranial bleeding, intracranial infections, developmental defects, hypoglycaemia, hypocalcaemia, inborn error of metabolism and epileptic syndromes.² Therefore it is vital to identify these seizures, find their causes and establish appropriate treatment. Listed below are four essential types of seizures³:

1. Subtle seizure: most common type
2. Clonic seizure
 - A. Focal
 - B. Multifocal
3. Tonic seizure
 - A. Focal
 - B. Generalised
4. Myoclonic seizure
 - A. Focal, multifocal
 - B. Generalised

Subtle seizures can manifest in several forms such as chewing, paddling, cycling, boxing and ocular movements; the most common of these is the ocular phenomenon. Myoclonic seizures have the worst prognosis of all neonatal seizures. Generalised myoclonic seizures are well localised, migrating jerky movements and usually involve the arms. Myoclonic seizures must be differentiated from clonic seizures.^{4,5}

Neonatal seizures must be differentiated from jitteriness.⁶ The cause must be found and the seizure treated accordingly. Diagnosis requires a high level of suspicion, and experience is imperative for recognising the type of seizure. Detailed history

Video 1 video showing multifocal myoclonic seizures in the infant. The seizures started in lower limbs and then starting in upper limbs. On that point are also twitching movements of the face. Also see associated distortion with an infant.

Video 2 Video is showing cycling movements of both lower limbs (a subtle type of seizure).

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and physical examination can, in the majority of cases, lead to finding the cause of the seizure. Laboratory investigations including blood sugar, calcium, serum electrolytes, lumbar puncture and metabolic work up are required if inborn error of metabolism is suspected. Other diagnostic modalities include EEG and MRI.⁷ The anticonvulsant of choice is phenobarbitone while the underlying cause is being determined and treated.^{8 9} More detailed descriptions can be read from the many expert reviews available.³

Learning points

- ▶ Neonatal seizures are of various types and have different manifestations; health care personnel should learn to distinguish between them.
- ▶ The aetiology of neonatal seizures must be searched out and the seizures treated appropriately.
- ▶ Neonatal seizures should be regarded as a medical emergency and all healthcare personnel should be instructed in their treatment.

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