Hyperekplexia (Hyperstartle) Syndrome

Abstract

We present an infant girl with hyperekplexia syndrome, (hypertonia, hyperreflexia, and a characteristic exaggerated response to nose tap). This disorder is important to recognize because of the increases risk of apnea and sudden infant death. This infant responded to clonazepam.

Key words: Hyperekplexia, Hypertonia, Startle.

Case Report

A 45 day infant girl suffering form seizure like episodes was admitted to the pediatric ward of Imam Reza Hospital, Mashhad University of Medical Sciences. The infant was born by normal vaginal delivery and her weight was 3300 grams. On the first day she was admitted to the nursery and treated with phenobarbital and phenytoin because of seizures. The response to the medication was not good and after a few days her mother discharged her. Gestation, labor and delivery were unremarkable and Apgar scores were 7 at minute one and 9 at minutes five. On examination, the infant was alert, attention and movements were appropriate for her age. Head circumference was normal and present weight was 3700 grams. Her gag, and sucking seemed hyperactive. Touching the child's face produced immediate head recoil with extension of the limbs. Tapping the nose was the most effective way eliciting the head recoil. Tone was symmetrically increased and ankle clonus was present. Deep tendon reflexes were increased. Feeding was difficult because mouth touch by mother's breast triggered the head recoil response. Tremor of the limbs was elicited by touch, a loud sound, or by shining light in the infant's eyes. The asymmetric tonic neck reflex was normal. Brain CT scan and electromyelogram, formerly performed, were normal. After diagnosing of hyperekplexia and startle response, clonazepam was begun and these movement and feeding became normal immediately. The baby was discharged after a week. Social and cognitive function were normal at 4 and 10 months of life but gross motor development was mildly delayed and remained mild hypertonic. At the age of 16 months she was able to work.

Discussion

Hyperstartle syndrome (or Hyperekplexia) is a neurologic disorder characterized by hypertonicity, tremor, exaggerated response to tactile, auditory and visual stimulation. Two clinical groups of this syndrome have been proposed. Major hyperekplexia is the term proposed to describe patients with the following features: hypertonicity in infancy, excessive startle response, startle induced falls without loss of consciousness, episodic generalized shaking, generalized hyperreflexia, and insecure...
hesitating gait. In some patients the exaggerated startle response is not accompanied by hypertonicity; this has been termed “minor hyperekplexia”. Severity of symptoms is variable among patients. Startle induced falls may start as soon as the infant learns to walk and injury is common. Sleep myoclonus may be marked. Cranial nerve function is usually normal but some patients have slow saccade eye movements. Emotional states, such as anxiety, heighten the tendency to startle.

A hallmark of this disorder is a failure of the startle response to habituate and in many patients repeated stimuli elicit a greater response (sensitization). Hypokinesia of the face may be severe. Onset of symptoms varies from infancy to late adulthood. One patient with abnormal fetal movement has been reported. Hypertonicity is present in the newborn period, but it tends to slowly improve over the first years of life, and tone is usually normal by adulthood. The axial hypertonicity interferes with gross motor development so that sitting and walking are significantly delayed, whereas fine motor skills are either normal or only slightly delayed. Walking may be limited also by startle induced falls. Inguinal and umbilical hernias commonly develop during first year of life, probably because of prolonged and recurrent hypertonicity interfering with maturation of the abdominal muscles. Cognitive development is usually reported as normal. Electroencephalograms are nearly always normal, but rarely epileptiform discharges may be seen.

Although many authors have stated that hyperekplexia is a benign condition that resolves or at least substantially improves in the first decade of life, other reports have emphasized that neonatal apnea and even sudden infant death occur in the disorder. Fifteen patients with hyperekplexia from three families were described by Nigro and Lim. Infants experienced recurrent apnea during the first year of life that was successfully treated with clonazepam. Three untreated patients died unexpectedly during the neonatal period. These authors recommend that affected infants and all infants born to families known to have hyperekplexia be closely observed in the nursery for respiratory failure after birth. In affected infant home apnea monitoring during the first year of life should be considered. Electromyography may help to diagnose this condition.

Hyperekplexia may occur sporadic (our patient) or be inherited in an autosomal dominant manner. The clinical features of hyperekplexia appear due to dysfunction and distribution of glycine receptor in the central nervous system. Treatment of hyperekplexia is usually satisfactory with one of the benzodiazepines, which act as gamma-aminobutyric acid (GABA) agonist. Clonazepam is more effective than other drugs: valproate, pyridoxine, phenobarbital and vigabatrin in decreasing startle tendency. Our patient well treated with clonazepam. Lim and Nigro recommended starting clonazepam at 0.1 to 0.2 mg/kg/day in infants.

Exaggerated startle and hypertonicity occur in many conditions: hypoxic ischemic encephalopathy, increased intra cranial conditions: hypoxic ischemic encephalopathy, increased intra cranial pressure, neonatal tetany, strychnine poisoning, Schwartz Jampel syndrome, phenothiazine toxicity, and stiff baby syndrome. Most of these conditions are easily ruled out by clinical history, examination, and with direct laboratory testing.

In summary, hyperekplexia may present in the newborn period with hypertonia, hyperekplexia, and a characteristic exaggerated response to nose tap. This disorder is important to recognize because of the increased risk of apnea and sudden infant death. Most infants respond to clonazepam and close follow up is recommended.

References