Case Report

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Neonatal Head Injury as a Potential Etiology for Autism Spectrum Disorders and Attention Deficit Hyperactivity Disorder (ADHD)

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Abstract

Autism and ADHD are wide spectrum neurodevelopmental disorders of children with uncertain aetiology. Early neonatal or fetal acute brain insult is one of the suspected aetiologies. In this case of Autism and ADHD history of neonatal head injury is suspected as an aetiological possibility. No such case is reported yet.

Keywords: Autism; ADHD; Head Injury; Neonatal; Subependymal Hemorrhage.

Introduction

There are infrequent case reports of known aetiologies for Autism and Attention deficit hyperactivity disorder. The literature regarding the outcome of non-accidental head injury (NAHI) is scarce and lacks specific detail even though it is generally considered to be poor. Few studies report a wide range of neurological sequelae in children who suffered inflicted traumatic brain injury in infancy [1]. These include motor deficits, visual deficits, epilepsy, speech and language abnormalities, and behavioural problems. There is limited information regarding the long-term outcome of inflicted traumatic brain injury (TBI), including shaken infant syndrome [2]. The purpose was to describe the long-term neurologic, behavioural, and cognitive sequelae seen in this population [3].

Case Report

We hereby report a case of a 7 year old girl, born out of non-consanguineous marriage by LSCS in view of non-progress of labour. On the first day of life, the child suffered non-accidental trauma, allegedly being thrown by the father for a distance of over three feet in the hospital ward. There is also history of two episodes of fall from the father's hands in the neonatal period.

No immediate consequences were observed by the parents, and the child was not investigated further for the same. At one year of age, child was noticed to have speech delay in the setting of normal gross motor milestones. Over the next three years, parents noted child running amok, hyperactive, with significant paucity of eye contact, and gross deficit in social interaction and communication.

The child presented to us with these symptoms and was certified with a diagnosis of autism, attention deficit hyperactivity disorder with mental retardation. Child also developed three episodes of Grand tonic-clonic seizures and was started on Phenytoin and Risperidone.

A CT scan of the brain revealed subependymal calcification in the frontal horns and body of both lateral ventricles. This raised a dual possibility of tuberous sclerosis versus sequelae of remote trauma, and hence was further evaluated with an MRI of the brain. MRI showed evidence of subependymal micro-infarcts noted in bilateral temporal horns, which could represent sequelae of neonatal trauma suffered by the girl.

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Post imaging, the child was started on therapy cocktail for ADD/Autism, and consequently the child showed an improvement in activity and speech.

We therefore propose that the subependymal infarcts were probably related to concussion related injury on day of life one and probably resulted from the shear stress injury sustained by the brain. With the above correlation between clinical features and imaging findings, an etiological association between neonatal head injury and subsequent Autism/ADHD symptomatology cannot be ruled out.

Conclusion

Autism and ADHD may have a history of non specific early neonatal insult. A prudent , detailed neonatal resuscitation or trauma history may be fruitful in confirming the etiology in each case. Also modified therapy plan may help the child gain speech milestones. Therapy should be actively instituted to demonstrate early improvement in such cases.

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