Neurological Evaluation and Electroencephalograpic Findings in Children with Autism Spectrum Disorder

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ABSTRACT

Autism spectrum disorder (ASD) is a neurodevelopmental disorder characterized by limited and permanent deficits in social communication and repetitive sensory-motor behaviours. The etiology of the link between epilepsy and autism is still unknown, but some risk factors have been identified. Looking at the underlying chromosomal disorders that contribute to autism, some examples are CNV (Copy number alterations), single gene diseases, and the chromosomal disorders 5 q 11–q 13, 22 q, 2 q, 16 p, 1 p, 5 p, 15 q, 13 p, and 19 p. Consanguineous marriage, a history of autistic siblings, smoking during pregnancy, low birth weight, a history of preterm birth, hypoxia birth, maternal influenza, and advanced parental age are among the risk factors for autism. In 1943, the first report of the coexistence of autism and epilepsy appeared in the literature.

OBJECTIVES

Autism spectrum disorders (ASD) and epilepsy commonly co-occur. In the causation of ASD, there is a significant overlap of biological pathways with comorbidities such as epilepsy, autistic regression, and language and cognitive impairment. The presence of cerebral palsy and mental retardation has been identified as a high-grade risk factor for epilepsy.

According to studies, epilepsy affects 5 to 46% of autistic children and adults. The age of epilepsy seen in autistic patients peaks under the age of five and above the age of 10. The study aimed to analyze the neurological evaluation, electroencephalography (EEG) findings, and the relationship between autism and epilepsy.

MATERIALS &METHODS

We retrospectively analyzed demographic informations of 92 ASD patients diagnosed according to DSM-V criteria from January 2012 to December 2021. The collected data includes consanguinity, time of diagnosis, imaging findings, genetic studies, EEG findings and Denver Developmental Screening Test-II (DDST-II).

RESULTS

Of the 92 patients, 77% (n=11) were male and 23% (n=6) were female. The mean onset of symptoms were 24 ± 7.3 months and consanguinity and family history were 7.6 %. A total of 68 patients (70.6%) were evaluated with DDST-II were found global developmental delay. A total of 33 patients (34%) were revealed with chromosome microarray analysis and gen-specific characteristic findings were detected in 14 (6.5%) of the patients. Of the 63 patients who performed brain magnetic resonance imaging were found 28% to be anormal.

EEG findings were abnormal in 44.8% (22/49) of 49 patients who underwent EEG. Antiseizure medication was started in %86 (19/22) patients with clinical seizures only.

CONCLUSION

These findings show the frequency of coexistence of epilepsy and autism. Another contentious issue is the treatment of epileptiform abnormalities in children with autism who do not have seizures. Anticonvulsant medications may also interfere with mood and behavioral disturbances that are common in ASD. Examining the relationship between ASD and epilepsy can help us improve our understanding of the common pathogenesis and treatments for both. The overlapping pathogenesis of epilepsy and ASD demonstrates the importance of EEG scanning for all children with ASD

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