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Introduction

Autism spectrum disorder (ASD) is known to be spectrum of developmental mental disorders described as deficits in the reciprocal social interaction, verbal and nonverbal communication with limited repetitive

Interest and activities. Several interacting factors are associated with pathology involving maternal, environmental, nutritional and perhaps genetic risk factors although no specific genetic cause has been found yet. Local data lacks details about the exact incidence of ASD in Pakistan but worldwide incidence is 2-4 estimated to be around 7.6/1000. Children with ASD are thought to have impairment of the transportation of the folate across the blood-brain barrier because of “folate receptor auto antibodies (FRAA) that are either blocked or bounded to the “folate receptor alpha (FRa)”. This creates the condition known as “cerebral folate deficiency” where serum folate concentrations are normal but CSF folate concentrations are low. Studies have found that supplementing children with ASD with a reduced form of folate folinic acid allows for bypass of the impaired folate transport mechanism into the CSF, leading to improved behavior and language development. Recent data showed that folinic acid supplementation among children with non-syndrome ASD resulted in significant improvement in language and aberrant behavior.

Objectives

To determine role of folinic acid in improving the adaptive skills and language impairment in autism spectrum disorder (ASD) among children aged 3-14 years.

Material and Methods

METHODS: This open label randomized controlled trial was conducted at the Out-patient Department of Pediatric Neurology, The Children Hospital & The Institute of Child Health Multan, Pakistan from October-2020 to March-2021. A total of 44 (22 in each group) children of both genders, aged 3-14 years with diagnosis of ASD were included. Children receiving folinic acid (dose of 2mg/kg/day in two divide doses) and behavioral therapy were assigned to Group-A while Group-B received only behavioral therapy. Primary outcome measures were improvement of language and adaptive skills while secondary outcome measures were stereotype movements, verbal communication, hyperactivity, peer relationship and inattention were these parameters measured at baseline, 6-weeks and 12-weeks (final outcome) intervals.

Results

RESULTS: Of 44 children, 34 (77.3%) were male and 10 (22.7%) female. Mean age was 4.28±1.57 years. At baseline, outcome measures scores in between both study groups had no statistically significant difference (p>0.05). Regarding final outcome, among children in Group-A, primary outcome measures as gross motor development age (51.41±16.29 months vs. 39.23±51.41 months, p=0.002), self-help (48.64±13.68 months vs. 37.45±6.82 months, p=0.001) and language (18.68±6.34 months vs. 15.15±5.22 months, p=0.050) scores improved significantly when compared to Group-B. Regarding secondary outcome, stereotype movements (p=0.028) improved significantly in Group-A in comparison to Group-B

Conclusion

Folinic acid along with behavioral therapy helped improving language and adaptive skills in children with ASD when compared to behavioral therapy alone.

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