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Research Article

**FACTORS ASSOCIATED WITH THE DEVELOPMENT OF
AUTISM SPECTRUM DISORDER- AN OBSERVATIONAL
STUDY**¹Dr Saeeda Bano, ²Dr Noor -Ul -Ain, ³Dr Sheeba Shabbir¹MBBS, PGD Nutrition, Ms SLP, Islamic International Medical College Islamabad,²Lecturer, Islamic International Medical College Islamabad,³Assistant Prof. HBS Medical College Islamabad.**Article Received:** May 2019**Accepted:** June 2019**Published:** July 2019**Abstract:**

Background: Autism spectrum disorders and autism are the terms used for a group of complex disorders of brain development. It has varying degrees by difficulties in social interaction, verbal and nonverbal communication and repetitive behaviours. The cause of it is not known yet.

Objective of the study: To determine the most common factors associated with the development of autism spectrum disorder.

Material and method: It is a case control study. The sample size is 320 children of age 3 to 10, divided into two groups, A & B. Group A consisted 80 children with diagnosed Autism, and group B consisted of 240 normal healthy children. Multiple variable was analyzed for association to Autism. Data was collected by a self-designed structured questionnaire filled up by parents. These variables analyzed were status of Pregnancy & delivery, anaemia of mother, intake of Iron, Folic Acid, or any other drug, or addition of the mother. Odds ratio comparison was done using SPSS version 20. A p value of less than 0.05 was taken as statistically significant.

Results: Statistical analysis showed that out of ten known variables only status of pregnancy and the mile stone of the baby born had a significant association to Autism development.

Conclusion: It has been concluded that most of the factors documented till date, do not show any significant value to be considered as definitive risk factor. However, the status of the pregnancy and the delayed mile stones of the baby born did show significant association to Autism.

Key Words: Autism, neurodevelopment, Risk Factors, disintegrative.

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INTRODUCTION:

Autism is a lifelong condition. In its broad spectrum of severity, it is a syndrome¹. Autism affects the three main areas (known as triad of impairments), social communication, social interaction and social imagination. They may have sensory issues. The onset of this disorder is documented in the first three years of life. However there have been cases reports of late onset-autism in individuals who were 11, 14 and 31 years of age and who had previously Herpes Encephalitis² The children affected are perfectly normal in appearance³ Leo Kanner described ASD for the first time. Later the physicians and psychiatrist at John Hopkins University in Baltimore, Maryland predicted that there were many more cases like this which they had noticed⁴Thalidomide, Misoprostol, and valproic acid, maternal rubella infection and the organophosphate insecticide.⁵ These are also found to be associated with it. Gene mutation, gene deletion copy number variants and other genetic anomalies are all persuasively linked to autism⁶. As autism is a complex neurodegenerative disorder of multiple etiologies and disabilities and is lifelong and there is no cure of it⁷. There is no credible evidence that vaccines cause Autism. It shares overlapping diagnostic criteria related to deficits in communication, socialization and restricted interests and repetitive behaviour.⁹ Intelligence and general cognitive abilities in individuals with ASD can range from significantly below average in the intellectual disability range to above average in the intellectually gifted range.¹⁰ According to one study carried out in 2013 the prevalence of Autism in developed countries was 1 %¹ but a similar study that was done in China, Taiwan and Hong Kong showed a much lower rate. The reason is mainly the under diagnosis of the condition¹¹. There is another report published in USA about the prevalence of diagnosed ASD as reported by the parents of school aged children (ages 6-17) in 2011-2012.¹² There is a study conducted in a South Korean community in 2011. The target population was all 7 to 12 years old children¹³. A research was conducted to compare the expression of autistic traits in a sample of neurotypical individuals from one Western culture (UK) and two Eastern cultures (India and Malaysia). Behaviors associated with autistic traits were reported to a greater extent in the Eastern cultures than the Western culture.^[14] One of such studies was carried out to find out the pre, peri and neonatal risk factors for pervasive developmental disorder (PDD)¹⁴. Results showed that during the prenatal period risk factors for PDD was advanced maternal or paternal ages. While during perinatal and neonatal periods the risk factors for PDD were preterm birth, breech presentation, planned C-. In

various studies several etiologic hypotheses have been proposed¹⁵ to find this association. Studies have also shown that there are biological abnormalities contribute significantly to the behavioral symptoms¹⁶. A study was carried out investigate iron status in a group of children with autistic disorder¹⁷. Results showed that iron deficiency in children with children ASD. Autism spectrum disorders are among the most common neuropsychiatric disorders with an estimated global prevalence of 1% to 2.6%¹⁸. A study was done in Australia regarding the electroencephalographic features in ASD. It leads to the conclusion that a significantly larger proportion of children with a variety of cerebral disorders may marked with autistic features¹⁹ presentation. According to one study the relative risk of a second child having this diagnosis is 20- 50 times higher than the population base rate if first child is affected²⁰. Some scientists put forward the hypothesis that heavy metal intoxication may be one of the causes of autism²¹. Moy a molecular psychiatric researcher states that an interaction between genetic susceptibility mediated by multiple genes and possible environmental factors leading to aberrant neurodevelopment²¹. Most of the researchers agree that some of the key behavioural traits of autism in adults can be attributed to atypicalities in the underlying 'social brain' a network of cortical region²² which are activated when we are engaged in social perception or thinking.

OBJECTIVE:

To determine the factors associated with the development of autism spectrum disorder.

METHOD:

It is case control study of duration of 6 months. Children presenting to ARC and RCRS were included in the study. Three hundred and twenty children, from age 3 to 10 of both genders was included in the study, using Non- probability convenience sampling technique. The sample was divided in two groups A & B. Group A comprised of 80 diagnosed cases of Autism, Group B comprised of 240 were normal and healthy. Children with morbidities other than Autism were excluded from the study. Multiple variable was analyzed for association to Autism. Data was collected by a self-designed structured questionnaire filled up by parents. The variables analyzed were; status of Pregnancy & delivery, anaemia of mother, intake of Iron, Folic Acid, or any other drug, or addition of the mother. Association was also assessed between the appearance of autism with the birth weight and further mile stones of the baby born. Odds ratio comparison was done using SPSS version 20. A p

value of less than 0.05 was taken as statistically significant.

RESULTS:

Results showed that there was significant association of Autism (p value < .05) and the status of pregnancy of the mother, and also delayed mile stones of the baby born. (Table & Fig #1). No statistically significant association was observed between the other variables studied and development of Autism.

DISCUSSION:

Most of the factors which are commonly supposed to be associated with the autism²³ are not found to be as estimated risk factors. A study was done for the association of iron deficiency and ASD. The results showed a very high prevalence of iron deficiency in children with autism. ²⁴Another study showed that seventy seven percent children who had based line sleep disturbances improved significantly with iron

therapy ²⁵. Results of another study showed that mother's metabolic conditions may be broadly associated with neurodevelopment disorders in children ²⁶. The results of another showed that highly rated main cause was the genetic ²⁷. In association with genetics and its relation with the environment a study was carried out to find the association of autism with the environmental influences²⁸ which showed that genes may have association with ASD. Absence of most of our studied factors as risk factors, emphasize that genetics may have a major contribution.

CONCLUSION:

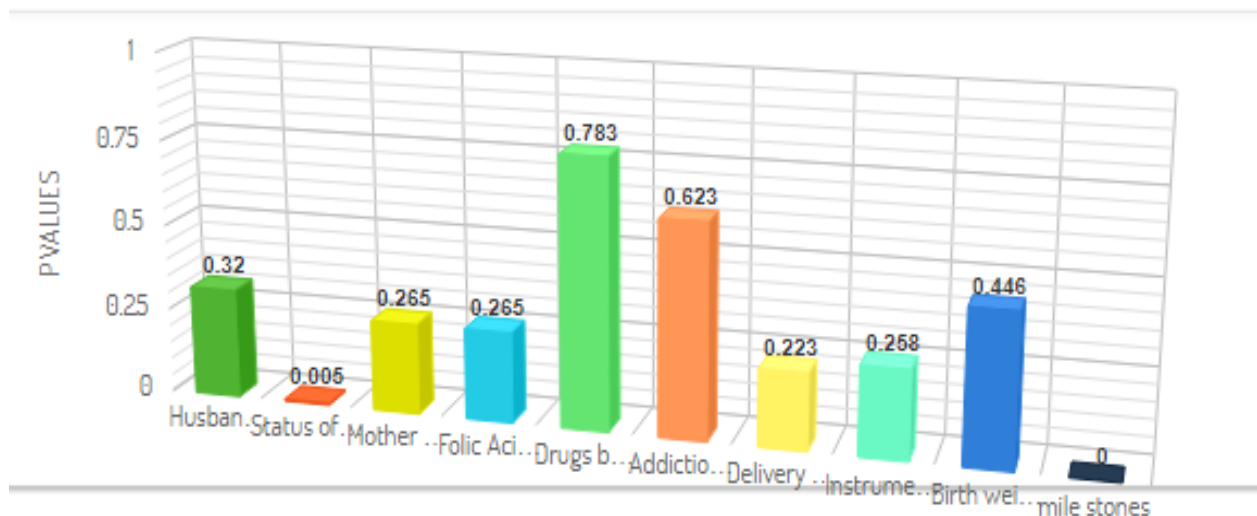
No significant association of most of the previously quoted risk factors associated with ASD have a persistent influence for the development of this disorder. However, combination of these factors may have a role.

Table 1

| Sr # | Variable | Odd ratio | P-value |
|------|---|-----------|---------|
| 1. | Husband wife relation | 0.0386 | 0.32 |
| 2. | Status of Pregnancy | 0.235 | 0.005 |
| 3. | Mother Anemic or not. | 0.539 | 0.265 |
| 4. | Intake of Iron and Folic Acid by mother | 9.765 | 0.265 |
| 5 | Intake of any other drug by mother | 0.734 | 0.783 |
| 6 | Addiction of Mother | 0.585 | 0.623 |
| 7 | Status of delivery | 1.435 | 0.223 |
| 8 | Instrumentation during delivery | 0.319 | 0.258 |
| 9 | Birth Weight | 0.502 | 0.446 |
| 10 | Mile Stones | 0.007 | 0.00 |

Risk factors associated with Autism in children ranging from 3-10 years

Figure 1: P values of the variables



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