

Autism: A deep insightHemaila Shanzeh Tariq,¹ Muhammad Yusuf Hafiz²

Madam, Autism Spectrum Disorder is a set of neurodevelopmental disorders characterized by deficits in social communication (social-emotional reciprocity, nonverbal interaction and developing and maintaining relationships) and restricted and repetitive behavioural patterns or interests.¹ Autism is a multi-factorial, rather than single, disorder of complex etiology.

The p75 Neurotrophinreceptor, or p75NTR belongs to the family of tumour necrosis factor receptors that are important in neuronal cell apoptosis and regulation of cell development. This is essential for development and survival of neuronal cells, and its mutation leads to disruption in function of neurons. This protein has been shown to be associated with Alzheimer's and Huntington's as well.² Scientists in Rutgers University-Newark used genetically engineered mice in labs to discover that mice without the p75NTR protein had more brain cells than those with the protein, which had a negative impact on cerebellar function (balance, coordination and cognitive function).³

Autism is said to affect one in 160 children globally according to the WHO.⁴

Though statistics show that the prevalence of autism in Pakistan is 350,000 population-based data is not available.⁵ Over the past two decades the prevalence of autism has increased. Since the etiology of Autism remains
¹5th Year MBBS Student, ²Aga Khan University, Karachi, Pakistan.

Correspondence: Muhammad Yusuf Hafiz. Email: m.yusufhafiz17@gmail.com

<https://doi.org/10.47391/JPMA.396>

unclear, hence studying the precise role of this gene would be instrumental in the treatment of this disorder.

Studies show that Autism has been refractory to many pharmacological treatments; a study done in 2015 on 135 people with ASD shows over half of them becoming refractory to first line drug treatment. Identifying the role of proteins like p75NTR would induce a paradigm shift in our approach towards ASD, leading to more efficacious management.

Disclaimer: None.

Conflict of Interest: None.

Funding Sources: None.

References

1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. Arlington: American Psychiatric Association, 2013; pp-81.
2. Brito V, Puigdellicol M, Giralto A, Toro DD, Alberch J, Ginés S. Imbalance of p75 NTR/TrkB protein expression in Huntington's disease: implication for neuroprotective therapies. *Cell Death Dis.* 2013; 4:e595.
3. Marchetti L, Bonsignore F, Gobbo F, Amodeo R, Calvello M, Jacob A, et al. Fast-diffusing p75NTR monomers support apoptosis and growth cone collapse by neurotrophin ligands. *Proc Natl Acad Sci USA.* 2019; 116:21563-72.
4. Mayada E, Divan G, Koh YJ, Kim YS, Kauchali S, Marcín C, et al. Global prevalence of autism and other pervasive developmental disorders. *Autism Res.* 2012; 5:160-79.
5. Nadeem G, Bibi A, Suhaib B, Ahmed S, Ahmed S, Ali S. Clinical and Demographic Features of 76 Children with Autism Spectrum Disorders at a Centre in Pakistan. *J Coll Physicians Surg Pak.* 2019; 29:390-1.