

Intellectual Disability in Children with Autism Spectrum Disorders

Migena Kika, MD,

National Center for Growth,
Development and Rehabilitation of Children,
Tirana, Albania,
bedenimigena@hotmail.com

Abstract:

AIM: To assess the frequency of intellectual disability in children diagnosed with ASD.

METHODS: A total of 98 children aged from 2 to 8 years of age were evaluated for ASD and their level of cognition in the National Center for Growth, Development and Rehabilitation of Children in Tirana, Albania. Griffiths Development scales from 0 to 2 years of age and SON-R (Snijders- Oomen Nonverbal Intelligence Test) from 2 to 8 years of age was used to assess the cognition and the intellectual disability if any in all the children that participated in the study.

All ASD subjects met the criteria of DSM -IV and were given the diagnosis using ADOS and ADI-R tests. All ASD children were children diagnosed with infantile autism and PDD-NOS. Children with Asperger, Rett syndrome and Childhood Disintegrative Disorder were excluded from the study. They were chosen randomly and signed a consent form of participation in the study.

RESULTS: From the total of 98 children 8 of them had an IQ score above 70 in one of the above intelligent tests (8 % of the total ASD children). 21 of the children had an IQ score from 70 to 55(mild intellectual disability, 21% of the total ASD children). 53 of them had an IQ score from 55 to 40(moderate intellectual disability, 54 % of the total ASD children). 12 of them had an IQ score from 40 to 25(severe intellectual disability, 12% of the total ASD children). 4 of them had an IQ score below 25(profound intellectual disability, 5% of the total ASD children).

CONCLUSION: Children with pervasive developmental disorders show a wide variety of co-morbid problems, which are relevant for the treatment and the course of the disorder and probably the most important one is the intellectual disability.

Keywords: *autism, intellectual disability, children, early identification, therapy*

1. INTRODUCTION

Autism spectrum disorder (ASD) is a range of complex neurodevelopment disorders, characterized by social impairments, communication difficulties, and restricted, repetitive, and stereotyped patterns of behavior. Approximately 1 in 68 children in the U.S. has been diagnosed with an autism spectrum disorder (CDC, 2014). The prevalence of autism has increased dramatically in the last decade.

It is usually diagnosed by 2 years of age and it occurs in all ethnic and socioeconomic groups and affects every age group.

Autism spectrum disorder (ASD) is now defined by the American Psychiatric Association's Diagnosis and Statistical Manual of Mental Disorders (DSM-5) as a single disorder that includes disorders that were previously considered separate — autism, Asperger syndrome, childhood disintegrative disorder and pervasive developmental disorder not otherwise specified.

The diagnosis of ASD now can be correctly be made by using ADOS and ADI-R starting from two years of age. By ADOS you can also evaluate and score the level of communication and language development in these children.

Autism and Intellectual disabilities (mental retardation) are two separate neurological conditions with some similar symptoms but also important differences between them.

Intellectual disability is a type of developmental disability that produces significant limitations in intellectual functioning ability and adaptive behaviors. These limitations can result in problems with reasoning, learning or problem-solving as well as communication and social skills difficulties.

ASD and Intellectual Disabilities share many symptoms so in childhood it is sometimes difficult to make a proper diagnosis.

A new study led by Weill Cornell Medical College scientists shows that the most common genetic form of mental retardation and autism occurs because of a mechanism that shuts off the gene associated with the disease.(1)

Most children with ASD are slow to gain knowledge or skills, and have signs of lower than normal intelligence.

Other children with ASD have normal to high intelligence — they learn quickly, yet have trouble communicating and applying what they know in everyday life and adjusting to social situations.

A small number of children with ASD are savants — they have exceptional skills in a specific area, such as art, math or music.

The percentage of autistic individuals who also meet criteria for intellectual disability has been reported as anywhere from 25% to 70%, a wide variation illustrating the difficulty of assessing autistic intelligence especially because ASD children have difficulties to cooperate during the intelligence test and also to express themselves verbally (2)

In 2001 a British study of 26 autistic children found about 30% with intelligence in the normal range (IQ above 70), 50% with mild to moderate retardation, and about 20% with severe to profound retardation (IQ below 35) (3)

The study in general found that 40–69% of individuals with ASD have some degree of intellectual disability, with females more likely to be in severe range of intellectual disability.(3)

Learning disabilities are also highly co-morbid in children with Autism Spectrum Disorders. It is estimated that 25–75% of individuals with an ASD also have some degree of learning disability. (4)

A 2006 review questioned the common assumption that most children with autism have ID. (5) The situation might be different from country to country.

2. METHODS

A total of 98 children aged from 2 to 8 years of age were evaluated for ASD and their level of cognition in the National Center for Growth, Development and Rehabilitation of Children in Tirana, Albania.

Griffiths Development scales from 0 to 2 years of age and SON-R (Snijders Oomen Nonverbal Intelligence Test- Revised Version) from 2 to 8 years of age was used to assess the cognition and the intellectual disability if any in all the children that participated in the study.

The level of cognition was assessed at the moment of the ASD diagnosis for all the children. The children had different ages at the moment of diagnosis and cognition assessment, starting from 2 to 8 years of age. They had not received autism specific treatment or special education for their intellectual disability until the moment of diagnosis and evaluation.

Griffiths development scales measures the rate of development of infants and young children from birth to 2 years. The GMDS measures five areas of development for the 0-2 age group as follows: Locomotor subtest assesses gross motor skills including the ability to balance and to co-ordinate and control movements, Personal-Social measures the developing abilities that contribute to independence and social development, Hearing and Language allows the assessment of hearing (in the sense of active listening), Receptive language and expressive language, Performance subtest draws on the developing ability to reason through performance tests.(6)

Intellectual Disability in Children with Autism Spectrum Disorders

The SON-R test is a nonverbal because it can be administered without having to use written or spoken language. The test was chosen specifically to assess the cognition of the ASD children who are unable to speak and have not yet developed expressive or receptive language.

The SON-R (2,5-7 years) consists of six subtests that contain series of fourteen to seventeen items with increasing difficulty. The testing procedure is adaptive in order to limit the test time and to prevent giving children items that are far beneath or above their level. Entry and stopping rules are used to determine where the test should be started and discontinued(7).

The subtests exist of performance and reasoning tests. The subtest consists in these subcategories: **Mosaics**(This subtest is an spatial visualization test), **Categories** (This subtest measures abstract reasoning ability,) **Puzzles**(This is a concrete reasoning test), **Analogies** (This subtest measures abstract reasoning ability), **Situations**(This subtest is a concrete reasoning test), **Patterns** This subtest measures spatial visualization ability.(7)

All ASD subjects met the criteria of DSM -IV and were given the diagnosis using ADOS and ADI-R tests. All ASD children were children diagnosed with infantile autism and PDD-NOS. Children with Asperger syndrome, Rett syndrome and Childhood Disintegrative Disorder were excluded from the study. They were chosen randomly and signed a consent form of participation in the study.

3. RESULTS

From the total of 98 children 8 of them had an IQ score above 70 in one of the above intelligent tests (8 % of the total ASD children).

21 of the children had an IQ score from 70 to 55(mild intellectual disability, 21% of the total ASD children).

53 of them had an IQ score from 55 to 40(moderate intellectual disability,54 % of the total ASD children).

12 of them had an IQ score from 40 to 25(severe intellectual disability,12% of the total ASD children). 4 of them had an IQ score below 25(profound intellectual disability, 5% of the total ASD children).

4. DISCUSSION

Most of the children diagnosed with Autism Spectrum Disorders had intellectual disability at the moment of the diagnosis. ASD and intellectual disability are two separate conditions that often coexists (comorbidities). Sometimes it may be difficult to distinguish between of the two disorders because in many children autism symptoms and intellectual disability symptoms often overlap. It is extremely different to make a differential diagnosis especially in ASD children with severe intellectual disability.

Autism and intellectual disability may have common genetic components. It remains to other studies to establish a genetic relationship if any.

The number of children with ASD and IQ score more than 70 is relatively low compared to the rest of the ASD children. This is probably because most children with ASD and no intellectual disability may not seek specialized medical advice regarding autism and the number may be unreported. Also children with extreme autistic traits and compromised intellectual disability are more likely to be evaluated by a medical doctor and thus result in a higher percentage.

5. CONCLUSION

Children with pervasive developmental disorders show a wide variety of co-morbid problems, which are relevant for the treatment and the course of the disorder and probably the most important one is the intellectual disability. Most of the ASD children resulted with mild to moderate intellectual disability followed by severe intellectual disability. The treatment of the ASD children should begin as early as possible not only to treat autism symptoms but also to improve the level of cognition in order for those children to adapt as better as possible in the everyday life.

ACKNOWLEDGEMENTS

The author of this article thanks the parents of children with Autism Spectrum Disorders for being part of this study and fully supports them in their daily struggle with ASD.

Conflict of Interest

None declared

REFERENCES

- [1] Promoter-Bound Trinucleotide Repeat mRNA Drives Epigenetic Silencing in Fragile X Syndrome -Science 28 February 2014
- [2] Dawson M, Mottron L, Gernsbacher MA (2008). "Learning in autism". In Byrne JH (ed.-in-chief), Roediger HL III (vol. ed.). Learning and Memory: A Comprehensive Reference 2. Academic Press.
- [3] Mash EJ, Barkley RA (2003). Child Psychopathology. New York: The Guilford Press.
- [4] O'Brien G, Pearson J (June 2004). "Autism and learning disability". Autism (Review)
- [5] Edelson MG (2006). "Are the majority of children with autism mentally retarded? A systematic evaluation of the data". Focus Autism and other developmental disabilities.
- [6] Ruth Griffiths(1954), Griffiths Developmental Scales
- [7] Tellegen, P.J. & Laros, J.A. (1993). The Snijders-Oomen nonverbal intelligence tests