Research Paper Medical Science

Prevalence of Autism Among Children With Intellectual Disability

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ABSTRACT

Aim : To study the prevalence rate of Autism among children with intellectual disability.

Methodology : A group of children who were previously diagnosed to have intellectual disability were assessed by direct observation and screened by using the DSM IV-TR FOR AUTISM criteria with the help of the teachers responsible. The children positive for autism in DSM IV-TR criteria were reassessed with age related checklist such as (i) Modified Checklist for Autism in Toddlers. (ii) Indian Scale For Assessment of Autism. The data was obtained and results are analyzed.

Results: 37 of the 156 children analysed were determined to have Autism with a prevalence rate of 23.6% with a male: female ratio of 3.1:1

Conclusion: Prevalence of autism and other pervasive developmental disorder in children with mental retardation is high and all cases of intellectual disability must be screened for them.

KEYWORDS autism, prevalence, mental retardation.

Introduction:

Autism is a disorder with reduced communication skills, problems in social development and stereotyped behaviors. Individuals also have high incidence of intellectual disability. Earliest studies considered as rare with prevalence about 4.5 per 10000 **(Lotter** V 1966). Study from 1971 to 2000 in Danish population showed a prevalence of 11.8 per 10000 (**Lauristen MB, Pedersen CB and Mortesen PB, 2004)** But recent studies show a great increase in the prevalence of autism (**Marshalyn Yeargin-Allsopp et al 2003).**

Data from the California Department of Developmental Services (DDS) show that between 1987 and 1999 the number of autism cases handled by the California DDS increased by 273% **(Department of Developmental Services 1999)** . More recently a study done by the Centers for Disease Control and Prevention (CDC) states that the overall prevalence of ASD was 14.7 per 1,000 (one in 68) children aged 8 years **(Centers for Disease Control and Prevention 2014).**

Although consensus is that the prevalence is increasing, whether it is due to increase in incidence or due to changes in diagnostic standards, practice and procedures, and/or diagnostic substitution is still highly debated (**Fombonne** E 2001). Independent of diagnostic substitution, some scholars have argued that changes in diagnostic practices lie behind the increased prevalence of autism. And also partly due to increased awareness of autism among doctors, teachers, parents.

The commonest co morbid condition in persons with autism or Autistic Spectrum Disorder is intellectual disability. Studies have demonstrated prevalence of about 65 to 70 % **(Ritvo et al , 1989 ; Marshalyn Yeargin-Allsopp et al, 2003)** .

About 1 percent of the general population is thought to have intellectual disability and according to data from the California Department of Developmental Services (DDS 18 -19 % of persons with intellectual disability have Autism Spectrum Disorder (ASD) **(Department of Developmental Services 1999)** . Diagnosis of autism in children with intellectual disability poses difficulties due to the cognitive deficits , language delay and stereotyped movements . Hence a study to determine the prevalence of autism in children with intellectual disability was undertaken.

Materials and methodology:

The permission from the Ethical Committee of the Institution was obtained. A group of children previously diagnosed as intellectual disability were selected from two special schools in Palayamkottai, Tamilnadu .The Autistic children were identified based on the school records maintained by the administration. The children were assessed by direct observation and were cross checked using the rating scales. The assessment was done with the help of the teacher responsible for the children. The students who were identified as autistic by the DSM IV-TR FOR AUTISM criteria (**American Psychiatric Association (2000)**) were confirmed by Indian Scale For Assessment Of Autism ISAA. The data obtained was analyzed and the results were obtained.

Indian Scale For Assessment Of Autism (ISAA), National Institute of Mentally Handicapped, Secunderabad under the Ministry of Social Justice and Empowerment, is a 40 item questionnaire developed by the National Institute for the Mentally Handicapped. The questionnaire is divided under 6 domains- Social Relationship and Reciprocity, Emotional Responsiveness, Speech-Language and Communication, Behaviour Patterns, Sensory Aspects and cognitive component. The ISAA rates children based on the severity of occurrence of the behaviour as rarely, sometimes, frequently, mostly and always giving it a score from 1- 5. A symptom severity score of 70 in ISAA corresponds to 40% disability, 71 to 88- 50%, 89 to 105- 60%, 106 to 123- 70%, 124 to 140- 80%, 141 to 158- 90% and more than 158 corresponds to 100% deformity though score more than 153 means severe autism.

Modified Checklist for Autism in Toddlers(M-CHAT) **(Robbins, Fein, Barton and Green 2001)**, is a checklist for autism screening in toddlers between the age group of 16 and 30 months. It is a 23 item questionnaire in yes/

no pattern, but since the study group did not contain any toddlers the checklist was not used.

Results

Thirty seven of the 156 children with intellectual disability less than the age of 14 years in the two training schools were determined to have Autism with a prevalence rate of 23.7% (Table1) . Figure 1 shows prevalence of various disorders among mentally retarded children.

Autism prevalence rate remarkably show predominance of males yielding a sex ratio of **3.1:1.**[Fig 2]. (Males 28, females 9).

From the results it can be seen that 2.7% had Autism with cerebral palsy, 2.7% had Autism with Attention deficit Hyperactivity Disorder and remaining 94.6% cases had autism with Mental Retardation.[Table 2].

Also at the time of study, more prevalence was seen in the age group of 11 to 14 years- 64.8% and least in the age group of 1 to 4 years- 2.7%. [Table 3] .

Discussion

Presence of intellectual disability in autistic children is a well established fact. The finding in our study population among 156 children with intellectual disability the prevalence of Autism is 37 cases (23.7%). The prevalence of pervasive developmental disorder in mentally retarded children is 18 to 19% (**Department of Developmental Services , 1999**). Higher prevalence of autism in persons with intellectual disability may be due to neurodevelopmental etiology. In a study of 98 persons 27% had autistic disorder and 11 % has autism like condition **(Suzanne Steffenburg, Christopher Gillberg and Ulf Steffenburg, 1996)** . In some studies the percentage of autism in children with intellectual disability is slightly low like 11 % (**Bakare MO, Ebigbo PO and Ubachi VN** 2012) , 8.4% **(Peter Strømme and Trond H Diseth ; 2000)** or 4.2 % **(Ram lakhan , 2013).**

Our study also showed that more boys than girls had autism at a ratio of 3.1:1 which correlates with the other studies with male : female ratio 4:1 **(Marshalyn Yeargin-Allsopp et al 2003, Bakare MO, Ebigbo PO and Ubachi VN , 2012)** or 4.6 : 1 **(Cavagnaro 2007**) . This bias towards male sex may be biological but also may be due to ascertainment bias (**Werling Donna M.; Geschwind and Daniel H ; 2013)** .

Our study demonstrated that the prevalence rates vary by age, ranging from 2.7% in 3-4 year-olds, 10% in 7 -8 year-olds and 32.4% in 11-12 year olds. The prevalence of autism increases as age advances. This finding correlates with previous studies (Cavagnaro 2007) .From our studies, it can be seen that the prevalence of autism at the time of study was highest in the older age group of 11 to 14 years. Not surprisingly, younger children have lower prevalence rates than older children since many young children may not yet have come to the attention of professionals. As the diagnosis of autism is based on the presence of unusual behavioural patterns, determining prevalence is challenging. There is no medical or genetic screening or diagnostic laboratory test for autism, and clinicians apply clinical criteria differently to arrive at a diagnosis of autism and related subtypes. Also lack of treatment seeking behaviour, low socio economic status, lack of knowledge about the disease result in later diagnosis thus resulting lack of early intervention for autism.

There is an increase in the prevalence and incidence of autism spectrum disorder mainly due to diagnostic substitution which plays a significant role. Diagnostic substitution occurs when an individual, due changes in diagnostic standards, practices and procedures, or individual condition, is diagnosed with one condition at one time and subsequently with another condition at some further point in time. Some scholars have argued that changes in diagnostic practices lie behind the increased prevalence of autism. And also partly due to increased awareness of autism among doctors, teachers, parents.

Conclusion:

Intellectual disability and autism commonly coexist. Lack of awareness and similar clinical manifestations lead to under diagnosis of autism. These findings stress the importance of identifying children with autism at the earliest age so that early interventions can be made and the outcome may be more successful for such children.

Table 1 (Prevalence of Various Disorders in people with intellectual disability (Mental Retardation)

S. no	Diseases	Number of children	Percentage
1.	Down syndrome	45	28.8%
2.	Cerbral Palsy with Mental Retardation	30	19.2%
3.	ADHD with Mental Retardation	22	14.1%
4.	Autism with Mental Retardation	37	23.7%
5.	Others	23	14.7%

(Autism was the commonest comorbid illness in this population of persons with Intellectual Disablity)

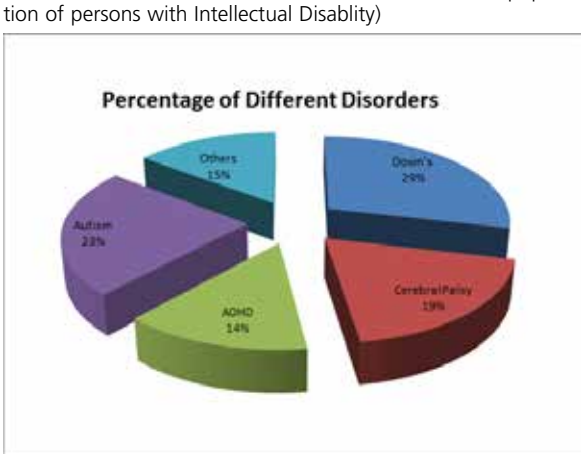

Fig 1 (Prevalence of various disorders among mentally retarded children)

Figure shows the prevalence of various comorbid disorders in people with intellectual disability. 23% have autism.

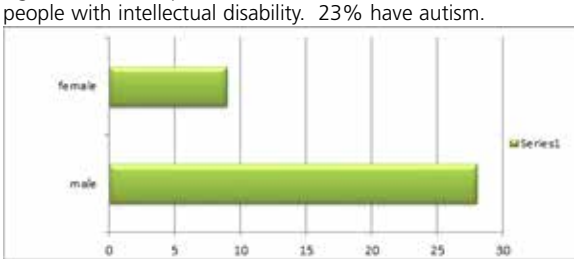

Figure 2 . Male female ratio

Table 2

Table shows the comorbid conditions in autism. Mental retardation is the commonest comorbid condition followed by Cerebral palsy and ADHD.

S. No	Comorbid conditions	Percentage
1.	Autism with Mental Reatrdation alone	94%
2	Autism With Cerebral palsy	3%
3	Autism with ADHD	3%

Table 3 (Showing age wise prevalence of autism)
Highest prevalence is seen in 11-14 age group (68%).

S.No	Age group	No.of Children	Percentage
1.	1-2		
2.	3-4	1	2.7%
3.	5-6	2	5.4%
4.	7-8	4	10.8%
5.	9-10	6	16.2%
6.	11-12	12	32.4%
7.	13-14	12	32.4%

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