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Clinical Profile of Autism – A Study of 56 Cases

MOHAMMAD S I MULLICK

Summary :

Background : Childhood autism is a rare but severe developmental disorder and can be considered as a behavioural syndrome with various neurobiological causes with predominantly genetic aetiology.

Objective : To assess the pattern of presentation and associated features of autism.

Design : A descriptive study done from July 1998 to March 2000.

Place: Child Mental Health Clinic, Bangabandhu Sheikh Mujib Medical University, Dhaka.

Subject: Fifty six consecutive new cases of childhood autism.

Measures: Cases were assigned ICD-10 clinical diagnosis of multiaxial classification of childhood and adolescent psychiatric disorders. Childhood autism was recorded according to clinical diagnosis of ICD-10. Clinical assessment was undertaken, using semistructured case assessment sheet.

Results : Broadly 9% cases had family history of autism or autism like features. Though, autistic features were documented from early life in majority of the cases, 16% showed regression after a period of some degrees of normal development. Impairment of communication was found uniformly in all and absence of meaningful speech was found in 41% as cases. Hyperkinesis (64%) was the main associated features followed by mental retardation (48%), temper tantrums (20%), self-injurious behaviour (18%) and phobia (14%) as recorded at the time of assessment. Seizure was found in 20% cases. Any grade of impaired psychosocial disability was found in all cases. Of these, severe and pervasive social disability was common (45%) followed by unable to function in most areas (25%). Reports of relevant investigations were recorded as insignificant except nonspecific EEG changes.

Conclusion : Multidisciplinary team in child psychiatric service and provision for adequate organized special education in the community level are required to help the autistic children and their families in Bangladesh.

Introduction :

Autism is a rare but severe developmental disorder characterized by a triad of impairments that include a lack of social relatedness, poor communication skills and absence of imaginative activity coupled with repetitive stereotypic behaviour and with early onset developmental abnormalities which are evident by 36 months in both ICD-10 and DSM-IV[1,2]. The prevalence of autism is estimated at 2-5/ 10,000 with number expanding to 10-20/ 10,000 if broader definitions are used[3,4]. The male : female ratio is about 3:1.[5] Analysis of the several studies revealed that there was a link between autism, seizures, signs of neurological impairment and mental retardation which provided evidence that autism is a pervasive developmental disorder with a neurobiological basis[6]. Autistic children were found to have specific cognitive deficit, different from (though often associated with) mental retardation[7-8].

Aetiology and pathogenesis of autism can view as a behavioural syndrome with various neurobiological causes with predominantly genetic aetiology. It was estimated that about 47% of the autistic individuals had chromosome abnormalities and about half of them

Associate Professor, Department of Psychiatry, BSMMU, Dhaka
Correspondence : Mohammad SI Mullick

showed the fragile X.[9] Another study showed the rate of fragile X in autism was about 2.5%[10]. Concordance rate ranged from 37-91% between MZ twins and 0% from DZ twins[11,12]. Most estimates suggest that 10-37% autistic children have known medical condition[13-15]. Obstetric adversity is of dubious aetiological importance.[16] Many researchers have hypothesized that autism results from a primary fault in just one neurological system or just one psychological function. It is equally plausible that autism reflects a distinctive condition of structural or functional abnormalities. Neurobiological studies has not identified a characteristic focal deficit. However, structural neuroimaging studies revealed enlargement of central nervous system fluid spaces, reduction in the size of neurocerebellar regions of normal vermal lobes VI and VIII among autistic individuals[17]. The findings have seen either partially replicated or not at all by others[18-21]. The findings of functional neuroimaging studies are also inclusive and somewhat contradictory[18,21]. Estimates of EEG abnormalities have ranged from 10-33% of autistic subjects which suggest that neurophysiological abnormalities are an integral part of all clinical manifestation of autism and autism is an organic disorder. Further, it has also been established that there is a clear association between epilepsy in autism and mental retardation[22]. Neurochemical studies revealed increased blood levels of serotonin and noradrenaline[23] but the findings have been inconclusive.[24,25] There are few theories like 'theory of mind', 'exclusive functional deficit' supported by empirical evidence to identify primary psychological and neuropsychological deficit in autism in the form of frontal lobe disturbances and lymbic dysfunction[26].

A large number of children suffering from psychiatric problem were reported to be brought to the teaching hospitals in Bangladesh.[27,28] This number is increasing in the past few years which is experienced by the author. Of this, considerable number are autistic children. The clinical pattern of autistic children yet to be unexplored in Bangladesh. This study was aimed to delineate the pattern of presentation of childhood autism and to assess the associated features with this disorder.

Methods :

The study was carried out in the Child Mental Health Clinic of the Department of Psychiatry, Bangabandhu Sheikh Mujib Medical University in Dhaka. The Child Mental Health Clinic is an outpatient clinic run by a team headed by the author (a child and adolescent psychiatrist) with a formal protocol. Other Members of the team are psychiatrists, psychotherapist, residents and psychiatric social worker.

The present sample consists of a consecutive 56 new cases of childhood autism between July 1998 and March 2000. The children were assigned ICD-10 clinical diagnoses of multiaxial classification of childhood and adolescent psychiatric disorder[29]. This classification has six axes - Axis One : Clinical psychiatric syndromes, Axis Two: Specific Disorders of Psychological Development, Axis Three: Intellectual level, Axis Four : Medical Conditions, Axis Five : Associated Abnormal Psychosocial Situations, Axis Six : Global Assessment of Psychosocial Disability. In the first axis, childhood autism was recorded according to clinical diagnosis of ICD-10[1]. As per description in this clinical guidelines, when autistic children fulfilled the diagnostic criteria of Hyperkinetic disorder, it was considered as the associated feature of autism rather as comorbidity and therefore not recorded in the axis one as double diagnosis. Similarly, impairment in communication are universal in autism and specific developmental disorders of speech and language was not assigned in the axis two.

In each case, thorough clinical assessment was undertaken at the time of first assessment or subsequent series of assessment whenever required using semistructured case assessment sheet. The diagnoses were phenomenologically based; drawing on the extensive information on symptoms and resultant impairment from multiple informants. The clinical assessment of mental relation along with its degrees of severity was based on the information available from history, clinical findings including mental status examination and impairment in adaptive behavior. accordingly to diagnostic guideline of ICD-10[29]. As no psychometric test was applied, the diagnosis was recorded as provisional. The clinical diagnosis was rated by the author himself.

Results :

Table-I shows the sociodemographic characteristics of the cases. Their age ranged between 2 years and 13 years with the mean of 5.25 (SD 2.81) years.

Largest number of patients were in the age group of 2-4 years with 39% and next was 5-7 years of age group with 32%. Among the patients, 47 (84%) were male. The rural and urban distribution of the cases were 27% and 73% respectively. Maximum cases were found from middle (47%) or higher (36%) income group. Majority of the cases (84%) had no schooling and only 4% cases had placement in special school.

Table-I

Sociodemographic Characteristics of Patients

Characteristics	Number (n = 56)	Percent
Age (in years)		
2-4	22	39.3
5-7	18	32.1
8-10	13	23.2
11-13	3	5.4
Mean age = 5.25 (±2.81) years		
Sex :		
Male	47	83.9
Female	9	16.1
M / F ratio = 5.2 :1		
Social background :		
Rural	15	26.8
Urban	41	73.2
Economic background :		
Higher	20	35.7
Middle	26	46.4
Lower	10	17.9
Education :		
No school placement	47	83.9
Placement in main stream school	7	12.5
Placement in special school	2	3.6

Source of referral of the cases is shown in Table-II. It revealed that 36% cases were referred from the discipline of paediatrics (paediatric outpatient departments of the university hospital and other hospitals, pediatricians, child development centre of the children hospital). Referral from neurology (neurology outpatients departments of the university hospital and other hospitals, neurologists) was the second largest group (20%) followed by 10% cases who were brought directly by their parents. Three (5%) cases were referred from psychiatric outpatients departments of other hospitals and general psychiatrists. The main reason for referral was probable psychiatric diagnosis and treatment. Only 4(7%) cases were referred for further assessment of already diagnosed cases (Fig-1).

Table-II

Source of Referral

Source	Number (n=56)	Percent
Paediatricians	20	35.7
Neurologist	11	19.6
General Psychiatry	3	5.4
GP and Postgraduate medical students	6	10.7
Other medical personnels	3	5.4
Parents	10	17.9
Special schools	3	5.4

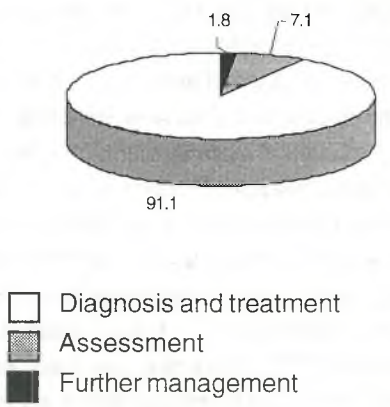

Fig.-1 : *Reasons of Referral*

Fig-2 shows that 51 (91%) cases had no family history of childhood autism or autism like features. Of the rest, only one (2%) sibling was found to be autistic. Deviant and markedly delayed speech development with some degree of communication difficulties, and persisting slight level of social deficit of father were found in 4 (7%) cases.

Fig-3 shows the pattern of onset of childhood autism among the cases within 36 months of their age. Early appearance of autistic features up to 6 moths of age was reported in 47 (84%) cases. Regression after a period of some degrees of normal development (6 months onwords) was found in 9(16%) cases. This regression was mainly in the form of loss of learned language and social skills.

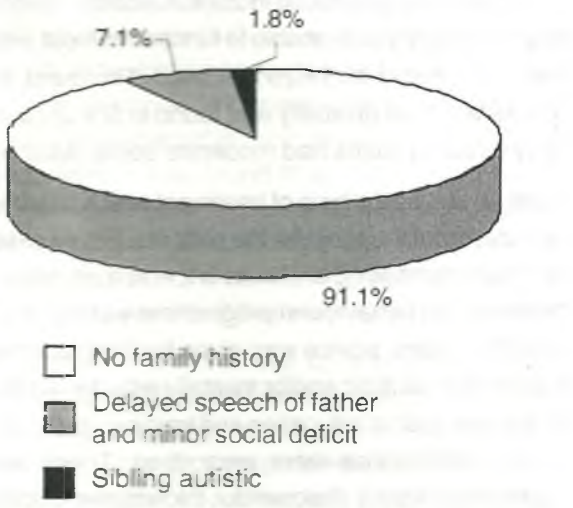

Fig.-2 : *Family History of Autism or Autism Like Features.*

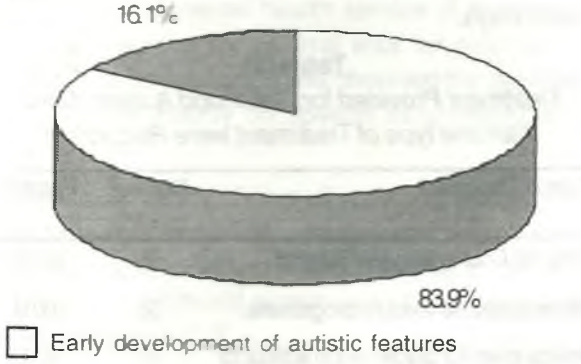

Fig.-3 : *Pattern of Onset of Childhood Autism among the Cases (Within 36 Months).*

Obstetric history revealed that there were no prenatal problems in 51 (91%) cases. Prematurity and advanced maternal age (above 40 years) was reported in 2 cases and hydrocephalus was found in one case. Prenatal problems were found in 5(9%) cases. Again, perinatal problems were not reported in 51(91%) cases. Of the 5(9%) cases of perinatal problems, birth asphyxia was reported in 3 cases.

Analysis of the features of autism revealed that social impairment, communication impairment, restricted and repetitive activities and movements were uniform in all patients. Impairment of communication was reported as developmental speech and language disorders. Absence of meaningful speech was found in 23(41%) cases in the form of bubbling. Abnormal speech was found in 33(59%) cases in the form of markedly delayed speech development with few words, lalling, pronominal reversal, idiosyncratic use of words and phrases, invented words, repetitive questioning, concrete contents, immature syntax, peculiar quality and rhythm of voice (Fig.-4).

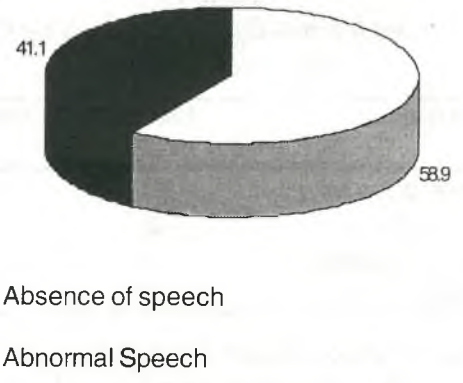

Fig.-4 : *Pattern of Communication Impairment Among the Patients with Childhood Autism*

Table-III shows the associated features of childhood autism found among the cases. Many cases had more than one features. Of these, largest group had hyperkinesis found in 36 (64%) cases followed by mental retardation in 27(48%) cases. Other features were temper tantrums (39%), aggression (10%), self injurious behaviour (18%) and phobia (14%). Further, specificity of mental retardation on the basis of the degree of its severity revealed that 3(5.2%) cases were of mild, 13 cases (23.2%) were of moderate, 9(16.1%) cases were severe and 2(2.6%) cases were profound in nature.

Table-III

Associated Features among the Patients with Childhood Autism (More Than One Feature were Recorded)

Feature	Number (n = 56)	Percent
Hyperkinesis	36	64.3
Mental retardation	27	48.2
Temper tantrum	22	39.3
Aggression	6	10.7
Self-injurious behaviour	10	17.9
Phobia	8	14.3

Associated medical conditions are shown in Table-IV. Most common were seizure disorder with 11(20%) cases (9 cases were of generalized tonic-clonic seizures, one case was of absence seizure, one case was complex partial seizure). Cerebral palsy was found in 2 (3.6%) cases. Tuberous sclerosis and hydrocephalus were found in one case each.

Table-IV

Associated Medical Condition among the Patients with Childhood Autism

Condition	Number (n = 56)	Percent
Seizure disorder	11	19.6
Cerebral Palsy	2	3.6
Tuberous sclerosis	1	1.8
Hydrocephalus	1	1.8

Of the 56 cases, relevant investigations were carried out where applicable and possible. Electro-encephalogram (EEG) was done in 24 cases and abnormalities were found in 14(58.3%) cases in the form of diffuse slow waves, focal spikes and waves activities, generalized faster activity. CT scan of the brain was done in 8 cases and only one scan was abnormal with diffuse atrophic changes. MRI of the brain was performed in 3 cases and the findings were within normal limit. Audiological testing was performed in 12 cases and one reported as suspected conduction defect. Karyotyping was done in 4 cases and all were normal.

Table-V shows the global assessment of the patients' psychosocial disability at the time of clinical evaluation. Disability was rated on the basis of the patients lowest level of functioning during the last 3 months. Some degrees of disability were found in all the cases. Serious and pervasive social disability was the largest category found in 25(45%) cases. Second largest category was unable to function in most areas and was found in 14(25%) cases. Profound and pervasive social disability was found in 5(9%) cases. Only 2 (3.5%) cases had moderate social disability.

Table-V

Global Assessment of Psychosocial Disability Among the Patients with Childhood Autism

Degree of disability	Number (n = 56)	Percent
Moderate social disability	2	3.6
Serious social disability	5	8.9
Serious and pervasive social disability	25	44.6
Unable to function in most areas	14	25.0
Gross and pervasive social disability	5	8.9
Profound and pervasive social disability	5	8.9

Table-VI shows the type of treatment which had been provided from the clinic for the patients. For all cases, parental counselling and support, and a package of home-based behavioural programme were given. In 45(80%) cases, advice was given for the placement in schools for autistic and/or mentally retarded children to achieve special education and training. In 18(32%) cases, medications were prescribed. These were mainly neuroleptics (haloperidol, thioridazine, sulpirid), stimulants (methyl phenidate) and anticonvulsants (carbamazepine, valproate, clonazepam) with the aim of controlling aggression, overactivity and seizure accordingly.

Table-VI

Treatment Provided for Childhood Autism (More than one type of Treatment were Recorded)

Type of Treatment	Number (n = 56)	Percent
Parental Counselling and Support	56	100.0
Home-based behavioural programme	56	100.0
Advice given for placement in school for special education	45	80.4
Medication (Neuroleptics, Stimulants, anticonvulsants)	18	32.1

Discussion :

The study was conducted in a child mental health clinic of a medical university hospital. At present, it is only one of this type of clinic. A good number of patients with child psychiatric problem attend this clinic. Childhood autism is a rare disorder. Therefore, 56 cases in this study are fairly representative.

Though the hospital is situated in Dhaka city, 55% cases came from outside Dhaka city. In this study male : female ratio was 5.2:1 which is consistent with the findings of several studies[5]. The majority of the cases were from affluent socioeconomic status that probably due to ascertainment bias. As such types of facilities are lacking outside the hospital, higher

economic group also comes to reach this service. Majority of the cases (84%) were not attending school which can be explained by their incapability to be placed in schools. However, 7(12%) cases were reported to be placed in main stream school. During assessment it was found that except one, these children were not in a position to be placed in that type of school. It appeared that the parental enthusiasm and poor understanding about the disease are the main reasons of their such school placement.

In this study, main sources of referral were from paediatricians (86%) and neurologist (20%). These were because autistic children are usually brought to these disciplines for their problems which reflect the parental believe about the causation of illness. However, about 18% cases were brought to the clinic directly by their parents. This is because of their better health consciousness and also the media coverage about the child mental health service of this clinic. The main reason for referral was for psychiatric diagnosis and treatment. It was observed that parental concern was mainly on speech abnormality and hyperkinesis.

In this study, family history of autism or autism like features was found in 9% cases and only one (1.8%) case had autistic sibling. Predominance of genetic aetiology of childhood autism is well established in several studies[9,11,12].

In the present study, age of onset was below 36 months of the age in all the cases. Within this time frame, regression was reported in 10% cases in the form of loss of learned communicative and social skills. Rogers and Dilalla[30] described that about one fourth to one third of the patients of autistic children reported a loss of speech in the first year of life, often accompanied by changes in social behaviour. The regression usually consist of the loss of most or all of the child's few communicative meaningful words. One study found that most children who lost words had been using them for less than 6 months[31]. Few children regained speech within a year, though many did so eventually.

Obstetric problems (both prenatal and perinatal) was found in 9% cases in this study. Obstetric adversity is of dubious aetiological significance and most researchers concluded that autism has generally not been associated with perinatal factors, rather they are more likely to be manifestations of intrinsic disorders of the fetus whose effects are environmentally mediated[32,33].

In this study, hyperkinesis was found to be most common associated feature of childhood autism (64%). This problem was also the main reason of parental concern that caused them to bring their children for medical help. This hyperkinesis fulfilled the criteria of hyperkinetic disorder. Hyperkinesis is common associated feature of the autism and in the course of autism which may be replaced by marked underactivity and inertia in the later period[34,35].

About 48% cases had mental retardation as double diagnosis and some degree of low intelligence was observed in majority of the cases who did not satisfy to label a diagnosis of mental retardation. The diagnosis of mental retardation among the cases was made clinically because of lack of facilities for formal assessment and no intelligence test was applied to judge the IQ. Therefore, diagnosis of mental retardation in this study was provisional. Great care was taken to reach this diagnosis to avoid any overinclusion and it can be assumed that actual existence of mental retardation could be more if formal assessment was made. The association of autism and mental retardation in this study is consistent with several studies[3,36,37]. It was found that about three-quarters had IQ scores in the retarded range and this finding appears to represent true intellectual impairment[36]. IQ is the single most powerful predictor of outcome of autism[38]. Children with non-verbal IQ of under 60 would almost certainly be severely handicapped in adult life and unable to live independently. Conversely, children with higher IQs are more likely to become independent.

In this study, 27% cases had underlying medical conditions mainly in children with low intelligence. The result more or less simulates with the findings of other studies.[13-15] Of these, most common was seizure disorder (20%). In a study, about 25% autistic children had seizures, more at the time of early childhood and onset of adolescence.[34,35] It was evident from several studies that there are association between autism and seizures[5,6]. However, it has been agreed that association with other underlying conditions might also be present and generally found in autism accompanied by severe mental retardation. Common associations are : tuberous sclerosis, phenylketonuria, rubella embryopathy and herpes encephalitis[39,40].

In the present study, findings of relevant investigations of the cases were not considerable except EEG changes. Abnormal EEG was found in 48% of cases. In several studies, estimates of EEG abnormalities have ranged from 10-83% with one recent study showing 32-43% of autistic subjects exhibiting abnormalities with one EEG and 58% with repeated EEG. Abnormalities are usually diffuse or focal spikes, slow waves, and paroxysmal spike and wave activity with mixed discharge.[18,21] Increased incidence of seizure disorder and abnormal EEGs in autistic children are important evidence that autism has a strong organic basis. The particular pattern of epilepsy with one peak of incidence during early childhood and second unusual peak during adolescence suggests that electrophysiological abnormalities are an integral part of the clinical manifestation of autism, not just the co-occurrence of two different disorders.[21,22,41].

In this study, some degrees of psychosocial disability were found in all the cases. Serious and pervasive social disability was predominant (45%) followed by 25% cases who were unable to function in most areas. These findings are similar with the description of childhood autism[35,36], which had arisen as a consequence of autism and its associated features including mental retardation. It was observed that high degree of disability was associated with greater degree of mental retardation, hyperkinesis and other associated conditions.

In the present study, parental counselling and support and home based behavioural programme were provided for all the cases.These were proved to be effective to some degree in subsequent followup interview at least in term of reducing parental worriness and increasing their motivation to imply behavioral programme for their children. Similarly, medication was proved to be effective to reduce aggression, overactivity in majority of such cases. Though placement in school for special education was advised for 80% cases, only 7(15%) of them were actually reported to be placed in such school. Organised educational facilities for autistic children are not existing in Bangladesh. A few centres in private sector are developing which are partially organized, centered in Dhaka city and costly. Conversely, such service for mentally retarded are much more organized and expanded throughout the country but again urban based.

Conclusion :

This study highlights that autism is not uncommon among the children and adolescents hospital attenders, which will hopefully increase the awareness among the relevant professionals to identify autism. Early identification of autism is extremely important for better outcome. Existing child mental health service is extremely poor in Bangladesh and just developing in the Bangabandhu Sheikh Mujib Medical University. Child and adolescent psychiatric service should be developed in psychiatry department of teaching hospitals. As there is no recognized cure of autism and as autistic children and adolescents require different types of treatment and support, appropriate treatment must address both immediate and long-term needs of the autistic children and their family. This is multidisciplinary process including psychiatry, paediatrics, special education, psychology and communication disorder specialists as well as social worker and other therapies. This type of multidisciplinary team in child psychiatric service is a fundamental need for their problem assessment and management planning. As education is the most powerful source of improvements for autistic children and adolescents, there should have good provision for adequate organized special education in the community level. This should be run by educational agencies supported by social and health agencies. Side by side, vocational training and support system is needed to be developed for autistic adults.

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