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Incidence of Psychiatric Disorders in Children affected with Intellectual Disability

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ABSTRACT: *Intellectual disability is caused by environmental influences, genetic disorders and infections including perinatal, postnatal and neonatal infections. Physical disabilities are also associated with intellectual disability (ID) children. Identification of ID patients occurred by test of intellectual disfunctioning. A cross sectional and analytical study was performed from September 2019 to March 2020 on intellectually disabled children on the Pakistan Air Force (PAF) children school Lahore, Fountain house in Sargodha and Shadab institute of special education, Punjab, Pakistan. The level of intellectual disability was based on the intelligence quotient (IQ). In present study, out of 200 children, 80 children were suffered from this disease, 56 were males and 24 were females. Cases related to intellectual disability were identified with in different age groups such as age group 0-5 (N = 13), 6-10 (N = 27), 11-15 (N = 27), 16-20 (N = 10), 21-25 (N = 3) and 26-30 (N = 3). A total of 33.75% were belong to 6-10 years of age group. Out of 80 children 27.50% (N = 22) were affected due to malnutrition in pregnancy, 16.25% (N = 13) children had folic acid deficiency, 15% (N = 12) children were due to exposure to the chemicals or radiations in pregnancy, 21.25% (N = 17) children had hypothyroidism and 16% (N = 20) children had other gene disorder associated with intellectual disability. Proper recognition of disorder can play an important role in dealing with psychiatrists patients.*

Keyword: *Intellectual Disability, Malnutrition, hypothyroidism, Radiation and Physical Disabilities*

INTRODUCTION

Intellectually disability defined as a state of abnormality in mental conditions that is frequently linked to various medical and psychological illnesses including emotional and

behavioral disorders such as Down syndrome, fragile X syndrome, attention defect hyperactivity disorder and autism with cerebral palsy (Lee et al., 2019). It is not rare for persons with ID to have coexisting psychological illnesses. In the field of psychiatry, where the research of intellectual impairment is involved, dual diagnoses have long been prevalent (Lakhan, 2013).

In view of American Association of Intellectual and Developmental Disabilities, ID involved limited adaptive behaviour (AAIDD 2010). Age allowed for diagnosis for autism spectrum disorder was changed by current issue of DSM (Diagnostic and Statistical Manual of Mental Disorder), with precise age of onset at 3 years of age being excluded (Grzadzinski et al., 2013). There is no link between sex and the occurrence of a coexisting disease. Oppositional defiant disorder (ODD) was shown to be more common in children under the age of six (51.9 percent versus 41.1 percent, p=0.007), but no other significant age-related relationships were found (Lecavalier et al., 2019).

Persons with intellectual disability had more chances to develop psychiatric disorders with respect to general population and to have viral or infective diseases (Lakhan, 2013; Kendall and Owen, 2015). While, they have less risk to get cancer and musculoskeletal disorders than general population (Liao et al., 2021). Due to a lack of comparable data, it was impossible to differentiate between mental and behavioral illnesses. Despite this, some percentage of intellectual disabled got a mental health disorders at some point in lives (Hatton and McMahon, 2020).

Signs of mental illness along with intellectual disability do not reflect psychiatric disease in general population. So, identification of psychiatric problems is mainly diagnosed in intellectual disabled children and became field of interest. Furthermore, in children with ID, weak cognitive ability may obscure other psychiatric illnesses, hindering appropriate identification of comorbid diseases (Lakhan, 2013). In past, it was commonly assumed that people having intellectual disability could not have disorders of mental health, but the increased incidence of mental health problems among intellectual disabled are now well known. Despite the fact that claimed prevalence rates fluctuate, population report of intellectual disabled have consistently shown comorbid mental health disorders of 30–40% (Reardon et al., 2015).

The evidences of shared genetic contributions and common phenotypic traits between schizophrenia and intellectual impairment as well as other neuropsychiatric illnesses such as autism and epilepsy are increasing. There has long been evidence of a relationship between schizophrenia and intellectual impairment. Intellectual incapacity, according to Kraepelin, the cause of 3.5 percent of instances with early-onset dementia praecox, also known as Pfropfschizophrenie (Prinzio et al., 2018).

This research determines the children's incidence with psychiatric problems along intellectual disability and also without intellectual disability. Intellectual disabled patients are mostly diagnosed behind the time as our population is unaware about intellectual disability. It must provoke the patients of intellectual disability to manage their daily life affairs by themselves. The study aimed to provides information that can be used for planning of treatment in health department, careful clinical evaluations, government approvals and subsequent development and treatment.

MATERIALS AND METHODS

Intellectually disabled Children were identified by looking in PAF children school, Shadab institute of special education Sargodha and Fountain house in Sargodha, Punjab, Pakistan. The study period was from 2019 to 2020. We have studied approximately 80 children of intellectual disability. We had also studied 5 families with three affected individuals.

Performas were generated to get very important date for the postal address, disease recognition and diseases present condition for children. The questionnaires were used as the design for recognition of serious cognitive, seizure, physical, learning, hearing and vision impairment among children, in visiting diverse population of Sargodha. Some of the questions emphasized on cognitive abnormality while some related to movement disorders including vision, hearing problems too. It was also converted from English to urdu. After that it was given to guardian of child, mainly parents during a face to face meeting. They were also asked to each child to fill out a structural form with demographic information. Performas were filled out by inquiring the patients of intellectual disability in the schools. Schools records of the intellectual disability (ID) children were assessed.

Identification for intellectual disabled children

To get information about children, the institute also organized a meeting

between children's parents and researchers. Information about different variables were asked as age, gender, residence value of IQ, relatedness of any genetic factor, environmental factors and physical factors that can be linked with intellectual disability as shown by symptoms. Children, that was intellectual disabled also identified by teacher in schools.

Clinical Evaluations

The meeting was organized and clinical evaluations of children were performed by group work of local psychologists along with physicians. After independently examining the youngster and discussing their results, a psychologist and a physician gathered to investigate ID. Non verbal assessments and adapted behavioral scales were created for children in Pakistan and used to assess mental impairment. Child developmental history and observation of structural language of child is very important for physical diagnosis.

Tests for intellectual quotient

It was designed to measure intellectual and mental disability. It was named as IQ tests. Factors like experiential learning, abstract thinking, problem solving, academic and mental learning along with reasoning was evaluated. For cut off score criteria, the person with 70 or lower IQ score was adjusted. The main purpose was assessment of intellectual disability.

StatisticsAnalysis

The results were obtained and analyzed using chi square test in computer tool (SPSS 22 version software) designed for analyzing data from multi phase experiments. Thus, the data for these children were weighted in the analysis.

RESULTS

Present study was carried out on different schools of Sargodha. Many of physical disorders were linked with intellectual disability. Some genetic disorders were also associated with the intellectual disability. The most representative age group was 6-10 years which included 32.5% (N=27) children as shown in table 1.

Table 1: Distribution of age in Intellectual Disabled

Age (Years)	No. of males	No. of Females	Total
0-5	5 (8.95%)	8 (33.33%)	13 (16.25%)
6-10	15 (26.78%)	12 (50%)	27 (33.75%)
11-15	23 (41.10%)	3 (12.50%)	26 (32.50%)
16-20	9 (16.10%)	1 (4.17%)	10 (12.50%)
21-25	4 (7.14%)	0 (0.00%)	4 (5.00%)
Total	**56 (100%)**	**24 (100%)**	**80 (100%)**

A large number of children had problems in feeding usually in childhood. 48.75% suffering from moderate intellectual disability. The range for very severe intellectual disability is twenty to thirty five IQ level. The most represented level of intellectual disability was moderate intellectual disability was in 48.75% (N = 39) children. 35% (N = 28) children had microcephaly, 21.25% (N = 17) children had hypothyroidism and 23.75% (N = 19) children had phenylketonuria as single gene disorder associated with intellectual disability as shown in table 2.

Table 2: Incidence of Genetically Disorders in Intellectual Disabled Children

Single gene disorders	Total no. of Individual
Microcephaly	28 (35%)
Phenylketonuria	19 (23.75%)
Hypothyroidism	17 (21.25%)
Other disorders	16 (20.00%)
Total	**80 (100%)**

In table 3 and 4 incidence of physical disorder and disorders in intellectual disabled children were reported.

Table 3: Incidence of Physical Disorders in Intellectual Disabled Children

Symptoms for disorder	Total No. of Children
Floppy limb	12 (18.75%)
Problem in feeding	32 (40.00%)
Cleft lip	11 (13.75%)
Large head	12 (20%)
Weak limbs	28 (35%)
Club feet	14 (17.50%)
Lump on back	3 (3.75%)
Lump at navel	2 (2.5%)

Table 4: Incidence of Symptoms for Intellectual Disability

Symptoms for Disability	No. of Children
Sitting Problem	26 (32.5%)
Standing Problem	29 (36.25%)
Walking Problem	33 (41.25%)
Difficulty in seeing in daytime	18 (22.5%)
Difficulty in seeing at night	19 (23.75%)
Difficulty in hearing	27 (33.75%)
Difficulty in Understanding	41 (51.25%)
Difficulty in moving his arms	25 (31.25%)
Loses consciousness at some times	34 (42.50%)
Child is not learning to do things like other children	45 (56.25%)
Cannot speak at all or make himself understood in word	35 (43.75%)
Child cannot name objects like toys books etc.	32 (40%)
Appear mentally backward and affected	39 (48.75%)

Environment factors influence on the intellectual disability. Out of 80 children 27.50% (N = 22) children were affected from intellectual disability due to malnutrition. 16.25% (N = 13) children were affected from intellectual disability due to iodine/ folic acid deficiency, 15% (N = 12) children were

fromexposure to the chemicals or radiations in pregnancy of their mother, 22.50% (N = 18) children were due to maternal infection in pregnancy of their mother and 18.75% (N = 15) children were affected due to Rh incompatibility as shown in fig. 1.

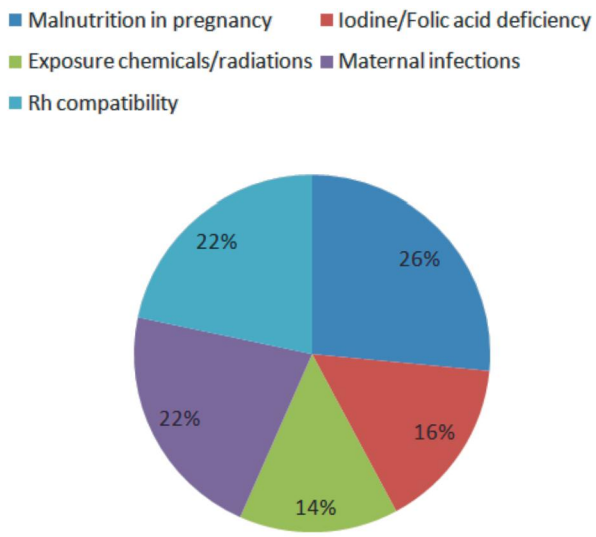

Fig. 1. Prevalence of Environment Influence on the children of Intellectual Disability

Some of the children infections are responsible for the intellectual disability. Out of 80 children 17.50% (N = 14) children had placental dysfunction. 20.00% (N =16) children had severe prematurity. 7.50% (N = 6) children had birth trauma. 30.00% (N = 24) had children complicated delivery. 25.00% (N = 20) children had not perinatal infection as shown in fig. 2.

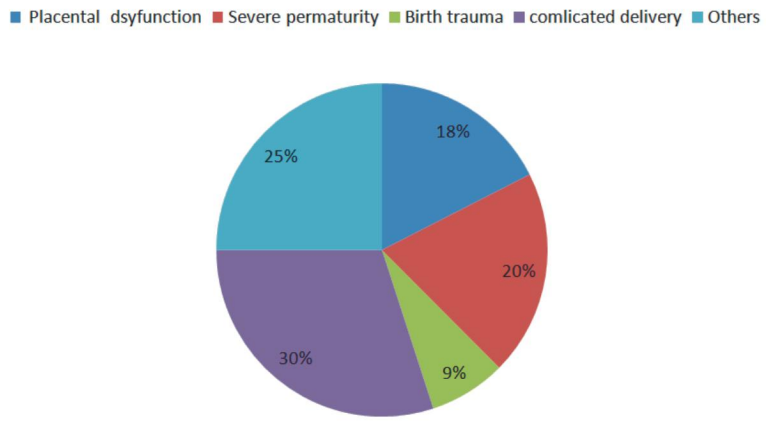

Fig. 2. Prevalence of Perinatal Infections in children of Intellectual Disability

Neonatal infection is also responsible of intellectual disability. Out of 80 children 35.00% (N = 28) children had septicemia. 26.25% (N = 21) children had severe jaundice. 10.00% (N = 8) children had hypoglycemia. 28.75% (N = 23) other children hadneonatal infection as shown in fig. 3.

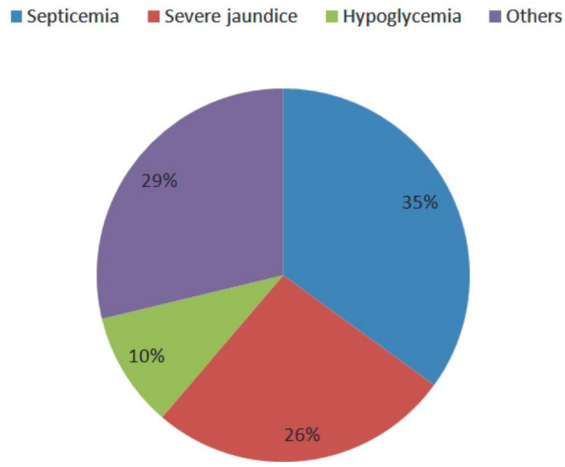

Fig. 3. Prevalence of Neonatal Infections in children of Intellectual Disability

Postnatal infection is also responsible of intellectual disability. Out of 80 children 35.00% (N = 28) children had brain infections. 18.75% (N = 15) children had head injury. 13.75% (N = 11) children had lead exposure. 32.50% (N = 26) children had malnutrition as shown in fig.4.

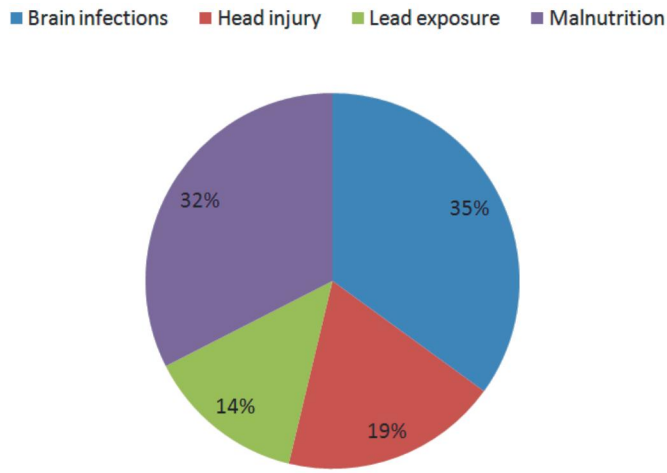

Fig. 4. Prevalence of Postnatal Infections in children of Intellectual Disability

Out of 80 children 40% (N = 32) children had not any other member of their family affected with intellectual disability. 31.25% (N = 25) children had

one other member of their family affected with intellectual disability. 22.50% (N = 18) children had two other member of their family affected with intellectual disability. 6.25% (N = 5) children had more than two other member of their family affected with intellectual disability.

DISCUSSION

A study conducted in Assiut (Egypt), in which total number of cases was 90, 63 males and 27 females, 76% of cases were coming from rural areas while 24% of cases were coming from urban areas (Nemerimana et al., 2018). Frequency of parent's consanguinity was 72.1% (n=227) and non-cousin marriage was 27.9% (n=88). In contrast, a study conducted to investigate the parental consanguinity among mentally retarded children found that (63%) were born to non-consanguineous marriages (Zeldin et al., 2012).

In another study 217 adults of population with intellectual disability and sample of two thousand three hundred and fifty adults without intellectual disability randomly participated. Elder intellectual disablers have greater risk for wellbeing, according to unadjusted comparisons. Results support the idea that intellectual disabled person have greater rates of health related disorders than general and normal population (Hatton and Mcmahon, 2020). The frequency of mild, moderate, severe and profound ID were 46.7% (n=147), 32.0% (n=101), 14.6% (n=46) and 6.7% (n=21) respectively, which is related with a study in which non-genetic ID patients were 97 in numbers that includes 24% mild ID, 40% moderate, 23% severe-profound and 10% unspecified ID (Anitha et al., 2011).

Decreased cultural and geographical diversity (both in urban and rural areas) have increased incidence of psychological problems in ID patients. Overall prevalence rate is from 13.9% to75.2%, the large range is due to greater sample size with different rate of geographical variation. The cultural and geographical diversity lowers psychological problems in ID patients as acting a environmental factor. Hence, particular attention should be given in diagnostics and sampling methodology (Buckles et al., 2013). Children with intellectual disabilities faced more psychological problems than normal having psychological problems. At current time there is no proper instrument that diagnoses psychological problems. Only PAS-ADD Checklist questionnaire and the Mini PAS-ADD interview (two third-party assessments instruments) are

used to diagnose psychological problems (Muller et al., 2022). While in another study the Health of the Nation Outcome Scales for people with Learning Disabilities into French (F-HoNOS-LD) was adopted to examine ID patients and study showed the scale gave valid and reliable results (Straccia et al., 2022).

Social status of class room and social environment that ID patient encompasses may increased liklihood of psychological problems. Social behavior of ID patients tells them whether they were accepted or rejected in environment. It was observed that, likeness and dis-likeness was low at beginning of schooling in ID patients but increase with social and class room behavior. About 10% of behavior change was due to social environment. Behavior problem is a greater risk for social exclusion of ID patients and special attention should be given in special school of ID (Schoop-Kasteler et al., 2022).

CONCLUSION

It was concludedthatin 200 studiedchildren, 80 cases of intellectual disability were identified which included 70% males and 30% females. Among them 32.5% belongs rural areas while 67.5% lived in urban areas. Problems during pregnancy (developmental problem in fetus) and problems at birthmight be lead to intellectual disability including developmental problems (getting not enough oxygen).Some of the children infections werealso responsible for the intellectual disability. Out of 80 children 17.50% children had placental dysfunction. Both neonatal and postnatal infections were also responsible of this problem. Attention of people to intellectual disability was very low. Hence, proper diagnosis of psychiatric disorder can help psychiatrists for dealing with patients as people diagnosed later in life.

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