Frequency of Intellectual Disability in Children with Speech Delay

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ABSTRACT:

Background: Language is the conceptual processing of communication and Speech is the verbal mean of producing language. Language includes receptive language and expressive language. Children are considered to have speech delay if their speech development is considerably below the norm for children of the same age. Intellectual Disability is considerably below average intellectual functioning with an onset before 18yrs of age, associated with significant impairment in adaptive functioning.

Objective: Objective is to find how frequent Intellectual Disability in children having speech delay.

Methodology: Portage Guide for Early Education (PGEE) was used to assess the patients with speech delay and associated cognitive impairment. Structured questionnaire was applied for the children between the ages of 1 to 6 years with speech delay. Sample of 50 patients was collected referred by Child and Family Psychiatry department, Mayo Hospital, Lahore. Data was taken in direct interview to parents or caregivers in a formal sitting and analyzed using SPSS software (version 16).

Results: Results showed 68% Intellectual Disability in children with Speech Delay. Males were more affected than females.

Conclusion: Frequency of Intellectual Disability in speech delay is high; this can be minimize with regular consult to Speech and Language Pathologists, Psychologists, Pediatricians and Parental education for well being of their children.

Keywords: Speech Delay, Intellectual Disability, Portage Guide to Early Education

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INTRODUCTION:

Speech is the verbal mean of communication, while language is the conceptual processing of communication. It comprises of receptive and expressive language. Children are assumed to have speech delay if their speech development is considerably below standard age.(1)

Speech and language delay is a wide term that covers a variety of disorders in early childhood and is conventionally distributed into types of delay: Primary and Secondary Delays. Primary Delay occurs when speech and language skills of children are delayed in contrast with other skills, typically when the cause is unknown. Secondary Delays occur where the speech and language skills are delayed to the same extent as other skills, frequently is result of known etiology. (2)Types of Primary Delays comprise Development Delays, Receptve and Expressive Language Disorders. Whereas Secondary Delays are linked with other stipulation like Hearing impairment, Intellectual Disability, ASD and Selective Mutism etc.(3)Other than the maturational delay and bilingualism, speech delay might have secondary significance. Importance of timely detection and treatment is recommended for the betterment of the Social, Emotional and Cognitive Deficit of disability.(4)

In clinical application, the tem "intellectual" was preferred since it is widely used, and broadly acceptable. It is an umbrella term that contains of cognitive functioning, adaptive behavior, and learning that is appropriate to age and meets the demands of daily life. (5)

According to WHO (World Health Organization)disorder of partial or detained mental Development is Intellectual Disability, primarily categorized by the decline of main functions at every stage of development and that contribute intelligence on the whole such as Cognitive, Language, Motor, Socialization functions; thus the adjustment to the environment is always affected.(6)The cause of Intellectual disability can't be resolute in approximately 30-40% of children with it, yet after widespread exploration. Known causes of intellectual disability consist of Trauma to the CNS, Intra-uterine Infections, Maternal Medications, Hypoxia, Meningitis or Encephalitis and Genetic Defects.(4)

Theorists such as Piaget, Skinner, and Chomsky have provided contexts to understand speech and language development. Piaget believed language was a component of a child's cognition and that children were active learners in their environments. Ingram summarized four types of infant speech production theories; Universal Theory, Articulatory learning theory, Maturational theory, Refinement (vs. Attunement) theory. No matter how much physical maturation proceeds, the infant won't effectively attain the capability to produce sounds of its own language without environmental input. (7)

Purpose of this study is to estimate the frequency of speech delay with respect to intellectual disability and to see its effect that influence children the most and lead to speech delay.

MATERIAL AND METHODS:

This study used the casual comparative design to examine the relationship between the speech delay and associated intellectual disability in children referred for a psychiatric evaluation. Sample was collected from outpatient department of Child and Family Psychiatry, Mayo Hospital, Lahore.

Sample of 50 children was taken in direct interview to parents or caregivers in a formal sitting; history was taken. After taking consent, development using Portage Guide for Early Education (PGEE) portion for cognition was applied on each child, questions were asked from parents and performed by the child. All children from 1 - 6 years of age with speech delay were included and assessed for cognitive development using Portage Guide for Early Education (PGEE). Cognitive portion of PGEE is used in study to find the exact chronological age and lack in it. It measures the child's mental age relative to its chronological age.

Age difference is calculated to assess the exact delay in cognitive development and is divided into six classes according to each year (0-1 yr, 1-2 yr, 2-3yr, 3-4yrs, 4-5yrs and 5-6yrs), there are questions in each portion.14, 10, 16, 24, 22 and 22 questions in portion 1, 2, 3, 4, 5 and 6 respectively. If ten consecutive No's are obtained then test is stopped there and age for previous years is calculated.

No. of correct responses × 12/ No of total questions = age of respective year

After calculating the age for all respective years, all values are summed up.

PGEE age – chronological age = Lack in cognition

Data was analyzed using SPSS 16. The choice of statistical test depended upon normality and sample size following study objective. P-value<0.05 was taken as significant.

Observations: Distribution of study sample is shown in Table 1. Sample of 50 children was taken.

Table 1: Distribution of study sample

	Gender		Total
	Male	Female	
N	32	18	50

Table 2.Frequency distribution for Cognitive Impairment of children

		Frequency	Total
Cognitive Impairment	Yes	34	50
	No	16	
	Male	19	34
	Female	15	

RESULTS:

Results showed dominance of speech delay in males than females. Intellectual disability was also significant in children with speech delay and its frequency was more prevalent in males.

DISCUSSION:

Speechis a process of communicating with others and mechanism of Intellectual effort which build the bases.(4)It is difficult to find out the prevalence of speech delay in children because of confusing terminologies, Variations in Diagnostic Criterion, insufficiency of valid and reliable Diagnostic Methods, unpredictability of unverified parental observations and troubles in Data retrieval and Sampling. Though, it can be said that Speech Delay is a common childhood problem which affects 3 to 10% of children. It is 3 to 4 times more frequent in males than females.(1)In this regard a study about speech disorders was conducted in Australia by McKinnon and McLeod, they took sample of 10425 students. According to their results high prevalence of speech delay was found in male more than female. (8) Similarly our results showed more occurrence of speech delay in males than females.

Insufficiency and flaw of any type causes Co-ordination Disorder, impedes the dynamic of systematic development and restructure it indetrimental way. Most common cause of Speech Delay is Intellectual disability which accounts more than 50% of cases. Relatively to other fields of development, Speech development is considerably more delayed in intellectually disabled children. (4)Pinborough, Satterfield and Miller conducted a study in determining the estimation of communication disorders in children with Intellectual Disability, Emotional or Behavioral Disorders and Autism and their impact. Findings confirm that Communication Disorders and co-existing intellectual wellbeing conditions are mainly of educational and health concerns. (9)Similar Findings were exhibited in our study result that is the frequency of Intellectual disability is more dominant in children with speech delay.

The growing risk factors are poor health conditions, improper parenting, inappropriate diet, which can affect the nervous system significantly, of children during early years, and these can cause delay in early physical growth and more seriously can be connected with delays in speech and cognitive development. (10)

Since cognitive disability cannot be cured, the treatment purposes must emphasize on the normalization of behavior in accordance with society. Early Intervention is vital so we should be keeping in mind that first five years of life are the most important in achieving the therapeutic goals. (6)Speech-Therapy and Special Education both seem to be valuable for children with Delayed Speech, Specific-Language Impairment and Intellectual Disability. (11)

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