



ETIOLOGICAL PROFILE OF CHILDREN WITH SPEECH AND LANGUAGE DELAY IN THE AGE GROUP OF 0-6 YEARS

Poornachand. V*	IAP fellow in Developmental and Behavioral Pediatrics, Child Development Centre, Thiruvananthapuram *Corresponding Author
Babu George	Director, Child Development Centre, Thiruvananthapuram
Deepa Bhaskaran	Assistant Professor, Child Development Centre, Thiruvananthapuram

ABSTRACT Speech and language development is a useful indicator of child's development and cognitive ability. Delay in language development is an early and most sensitive indicator of major neurodevelopmental disorders such as intellectual disability, autism spectrum disorder and specific learning disorders. Disorders with speech and language delay disrupt child's ability to communicate. It prevents child's participation in family and community and can impede school achievement. Descriptive cross sectional study was conducted in Speech Evaluation Clinic, Child Development center, Thiruvananthapuram on a sample 110 consecutive children. 73.11% of children had receptive language delay, 75.26% had expressive language delay and 74.19% had combined language delay. Global developmental delay was the leading cause which was seen in 40% of children, followed by isolated speech delay and autism spectrum disorder in 18.18% each, while 14.54% of children had normal speech and language development.

KEYWORDS : Speech and Language delay, Neurodevelopmental disorders, Receptive and Expressive language delay

INTRODUCTION:

Speech is a form of communication in which transmission of information takes place by means of sound (Kavitha, Nair, Deepa, Mini, & Mehtha, 2006). Normal development of speech and language is predicted by infant's ability to hear, see, comprehend, remember, and social interaction with others. It is a useful indicator of child's overall development and cognitive abilities. Language skills can be divided into receptive (hearing and understanding) and expressive (talking) abilities. In receptive language, child understands from verbal and non-verbal communication, whereas through expressive language child convey what he/she wants to communicate. Delay in speech and language development is an early and most sensitive indicator of major neurodevelopmental disorders (Law, Boyle, Harris, Harkness, & Nye, 1998)

Speech and language delay is the common presentation in pediatric practice. Observed prevalence of speech and language delay in Indian literature is 4.5% and it is 3.8% in western literature (Nair et al., 1991; Shriberg, Tomblin, & McSweeney, 1999). Severe speech and language disorder in young children can have a significant effect on child's later educational achievement (Stern, Connell, Lee, & Greenwood, 1995). Several studies have also shown that these children had difficulty in reading in elementary school, increased incidence of attention and social difficulties, impaired writing skills and marked deficits in spelling and punctuation (Bishop & Clarkson, 2003; McLaughlin, 2011; Silva, Williams, & McGee, 1987). It is observed that preschool children with speech and language delay are at higher risk of learning disability (Bashir & Scavuzzo, 1992), poor reading skills (Silva et al., 1987), written language (Bishop & Clarkson, 2003). These factors can lead to academic under achievement (Stern et al., 1995) and in some case lower Intelligence quotient (Silva, McGee, & Williams, 1983). Interventions found to be more effective when speech and language problems are identified at an early age (Stott, Merricks, Bolton, & Goodyer, 2002).

OBJECTIVES:

1. To find out receptive and expressive language delay among 0-6 year old children attending speech evaluation clinic and
2. To describe the clinical profile of children with speech and language delay

MATERIALS AND METHOD

This descriptive cross sectional study was conducted in Speech Evaluation Clinic, Child Development Centre (CDC), Thiruvananthapuram. Details of 110 consecutive children who attended Speech Evaluation Clinic from January 2017 to April 2017 were collected from medical records department of CDC. Details of parameters such as age, gender, birth details, antenatal, natal and postnatal risk factors were noted.

These children had undergone assessment of speech and language with the help of Receptive Expressive Emergence Language Scale (REELS) by the Developmental therapist from which Receptive Language Quotient (RLQ) and Expressive Language Quotient (ELQ) were derived. Delay was described as quotient < 80. Delay in other developmental domains was assessed using Denver Developmental Screening Test II (DDST II). Standard diagnostic tools were used for confirming other neurodevelopmental disabilities.

Data was analyzed using SPSS version 21. Results of the descriptive data were presented in percentages. Using Chi square test association between language delay and factors such as antenatal, natal and postnatal factors was calculated. P value below 0.05 was considered as statistically significant.

RESULTS:

A Total of 110 children were included in the study and Speech and Language was assessed using REELS, from which RLQ and ELQ was calculated. Table 1 shows the characteristics of these children. About 64.5 percentage of children belonged to age group 0-2 years. More than one quarter of children (33%) were in the age group 2-4 years. About 3 percent were in the age group 4-6 years. Majority of children in this study were male.

Table 1: Profile of the children (n=110)

Characteristics	Number in %	
Age group	0-2years	64.54
	2-4yrs	32.72
	4-6yrs	2.72
Gender	Male	70.9
	Female	29.1

Among 110 children, 73 percentages had receptive language delay and 75 percent had expressive language delay (Table 2)

Table 2: Receptive and expressive language delay

Language delay	Number of children in %
Receptive Language Delay (RLQ<80)	73.11
Expressive Language Delay (ELQ<80)	75.26

Table 3: Etiologies for speech and language delay

Etiology	Number of children in %
Global developmental delay	40
Autism spectrum disorder	18.18
Isolated delay of speech and language	18.18
Subnormal intelligence	4.54
ADHD	1.8

Hearing impairment	0.9
Structural defects	0.9
Social communication disorder	0.9
Normal language development	14.54

When antenatal, natal and postnatal risk factors were analyzed, antenatal risk factors were not significant for receptive and expressive language delay (Table 4). However for receptive language delay, respiratory distress and neonatal jaundice were statistically significant. Similarly for expressive language delay neonatal jaundice was statistically significant-p<0.05 (Table 5).

Table 4: Antenatal risks and receptive, expressive language delay

Risk factors	Number of children in %	Receptive language delay		Expressive language delay	
		Chi square	P value	Chi square	P value
Gestational diabetes	15.45	1.808	0.15	2.52	0.107
Gestational hypertension	10	1.294	0.22	1.77	0.171
Hypothyroidism	9.09	0.047	0.59	0.79	0.337
Abortion	7.27	1.072	0.26	0.09	0.53
Infection	0.9	3.43	0.23	3.81	0.21
Abnormal doppler	0.9	3.43	0.23	3.82	0.21
Infertility	0.9	0.29	0.77	0.27	0.79

Table 5: Natal, post-natal risks and receptive and expressive language delay

Risk factors	Number of children in %	Receptive language delay		Expressive language delay	
		Chi square	P value	Chi square	P value
Respiratory distress	18.18	10.353	0.003	2.935	0.083
Neonatal jaundice	14.54	7.930	0.009	9.582	0.005
Sepsis	3.63	1.758	0.222	2.12	0.192
Seizures	2.72	0.91	0.46	0.82	0.49
Hypoglycemia	2.72	0.907	0.458	0.82	0.49
Intracranial bleed	1.82	0.863	0.405	1.04	0.38

DISCUSSION:

Extensive studies are available on speech and language delay in western literature. However very few details are available from our country. In this study, of the 110 children, 64 % were below 2 years, 33% between 2-4 years, and around 3% between 4-6 years. Speech and language delay was more common in male children (79 % vs. 21%). Similar findings were obtained from various other studies in India (Binu, Sunil, Baburaj, & Mohandas, 2014; Mondal et al., 2016; Nelson, Nygren, Walker, & Panoscha, 2006). Among these children, expressive language delay was slightly more when compared to receptive language delay (75% vs. 73%).

Global developmental delay was the major cause, followed by ASD and Isolated Speech delay. At the end of complete evaluation 14.54% children were found to have normal language development. Rest 9.14% of children had other etiology such as Subnormal Intelligence, ADHD, Hearing Impairment, Structural defects and Social Communication Disorder. Similar observations were made in other studies (Shevell, Majnemer, Rosenbaum, & Abrahamowicz, 2001)

In this study antenatal risk factors were not observed in 65.5% of children; similarly 69% of children did not had Natal and Postnatal risk factors. Respiratory distress and Neonatal Jaundice were found to be statistically significant (p<0.05) for causation of speech and language delay. Various studies have demonstrated low APGAR, prematurity, higher birth order and failure initiate early breast feeding as important risk factors (Chaimay, Thinkhamrop, & Thinkhamrop, 2006; Prathanee et al., 2009). While no statistically significant difference was noted between speech language impairment and comparison group with respect to antenatal, natal and post natal risk factors (Whitehouse, Shelton, Ing, & Newnham, 2014).

CONCLUSION:

From this study it is clear that speech and language delay can occur in

children without any antenatal, natal and postnatal risk factors. Hence all children must be screened for speech and language delay irrespective of risk factors. Early detection and intervention of speech and language delay reduces or alleviates the severity of the problem thereby enabling him/her to adapt well with the society.

LIMITATION:

First, limited sample size (n=110) and time period (4 months). Second, findings of this study is based on clinic-based sample, which is not ideal to represent the language development of children in general population

REFERENCE:

1. Bashir, A. S., & Scavuzzo, A. (1992). Children with language disorders: Natural history and academic success. *Journal of Learning Disabilities*, 25(1), 53-65.
2. Binu, A., Sunil, R., Baburaj, S., & Mohandas, M. (2014). Sociodemographic profile of speech and language delay up to six years of age in Indian children. *International Journal of Medical Research & Health Sciences*, 3(1), 98.
3. Bishop, D. V., & Clarkson, B. (2003). Written language as a window in to residual language deficits: a study of children with persistent and residual speech and language impairments. *Cortex*, 39(2), 215-237.
4. Chaimay, B., Thinkhamrop, B., & Thinkhamrop, J. (2006). Risk factors associated with language development problems in childhood--a literature review. *Journal of the Medical Association of Thailand = Chotmaihet Thangphaet*, 89(7), 1080-1086.
5. Kavitha, S., Nair, M., Deepa, J., Mini, A., & Mehtha, V. (2006). Validation of LEST (1-2 years) against REELS Language Evaluation Scale Trivandrum (1-2 Research Form 2006) Against Receptive Expressive Emergent Language Scale. *Teens*, 1(2), 29-31.
6. Law, J., Boyle, J., Harris, F., Harkness, A., & Nye, C. (1998). Screening for speech and language delay: a systematic review of the literature. *Health Technology Assessment (Winchester, England)*, 2(9), 1-184.
7. McLaughlin, M. R. (2011). Speech and language delay in children. *American Family Physician*, 83(10).
8. Mondal, N., Bhat, B. V., Plakkal, N., Thulasingam, M., Ajayan, P., & Poorna, D. R. (2016). Prevalence and Risk Factors of Speech and Language Delay in Children Less Than Three Years of Age. *Journal of Comprehensive Pediatrics*, 7(2).
9. Nair, M. K., George, B., Philip, E., Lekshmi, M. A., Haran, J. C., & Sathy, N. (1991). Trivandrum Developmental Screening Chart. *Indian Pediatrics*, 28(8), 869-872.
10. Nelson, H. D., Nygren, P., Walker, M., & Panoscha, R. (2006). Screening for Speech and Language Delay in Preschool Children: Systematic Evidence Review for the US Preventive Services Task Force. *Pediatrics*, 117(2), e298-e319.
11. Prathanee, B., Purdy, S. C., Thinkhamrop, B., Chaimay, B., Ruangdaraganon, N., Mosuwan, L., & Phuphaibul, R. (2009). Early language delay and predictive factors in children aged 2 years. *Journal of the Medical Association of Thailand = Chotmaihet Thangphaet*, 92(7), 930-938.
12. Shevell, M. I., Majnemer, A., Rosenbaum, P., & Abrahamowicz, M. (2001). Profile of Referrals for Early Childhood Developmental Delay to Ambulatory Subspecialty Clinics. *Journal of Child Neurology*, 16(9), 645-650.
13. Shriberg, L. D., Tomblin, J. B., & McSweeney, J. L. (1999). Prevalence of speech delay in 6-year-old children and comorbidity with language impairment. *Journal of Speech, Language, and Hearing Research: JSLHR*, 42(6), 1461-1481.
14. Silva, P. A., McGee, R., & Williams, S. M. (1983). Developmental language delay from three to seven years and its significance for low intelligence and reading difficulties at age seven. *Developmental Medicine & Child Neurology*, 25(6), 783-793.
15. Silva, P. A., Williams, S., & McGee, R. (1987). A longitudinal study of children with developmental language delay at age three: later intelligence, reading and behaviour problems. *Developmental Medicine & Child Neurology*, 29(5), 630-640.
16. Stern, L. M., Connell, T. M., Lee, M., & Greenwood, G. (1995). The Adelaide preschool language unit: Results of follow-up. *Journal of Paediatrics and Child Health*, 31(3), 207-212.
17. Stott, C. M., Merricks, M. J., Bolton, P. F., & Goodyer, I. M. (2002). Screening for speech and language disorders: the reliability, validity and accuracy of the General Language Screen. *International Journal of Language & Communication Disorders*, 37(2), 133-151.
18. Whitehouse, A. J. O., Shelton, W. M. R., Ing, C., & Newnham, J. P. (2014). Prenatal, Perinatal, and Neonatal Risk Factors for Specific Language Impairment: A Prospective Pregnancy Cohort Study. *Journal of Speech, Language, and Hearing Research*, 57(4), 1418-1427.