Speech and language acquisition in children with cleft lip and palate: Challenges and remedial strategies

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Background: The cleft lip and/or palate (CL/P) is one of the most common craniofacial anomalies involving multiple etiological factors including genetic, environmental and sociocultural factors. CL/P is expressed as a failure of the fusion of craniofacial prominences. The global prevalence of CL/P has been reported as 1 in 700 live births. It is more prevalent among the boys, with a male-female ratio of 2:1. The pooled birth prevalence of CL/P in the Indian population is estimated as 1.3 per 1,000 total births.

Children with CL/P present with complex anomalies that involve the nose, lips, alveolus and/or palate, with problems in breathing, appearance, dentition, dental occlusion, facial growth, speech, and feeding. Even though language impairment is not a characteristic feature of CL/P, mild impairment in language expression has been reported due to inattention, lack of environmental stimulation and motivation, and socio-cultural prejudices.

The cleft may occur as an isolated birth defect or it may be associated with other inherited genetic conditions or syndromes. The associated conditions such as, visual and hearing impairments, cognitive and intellectual disabilities, structural and functional deficits of the brain, and genetic defects could increase the severity of the symptoms and hinder the development of speech and language skills in children with CL/P.

Methods: A retrospective study of CL/P was conducted at the Trivandrum and Shoranur centers of the Institute for Communicative and Cognitive Neurosciences (ICCONS). The case records of a total of 24 CL/P patients from Trivandrum during the period 2000-2020, and a total of 14 cases from Shoranur during the period 2017-2020 were examined in detail, and data pertaining to the family history, birth history, developmental milestones, type of cleft, comorbid conditions, and type of remedial measures undergone were collected. Any factors that could have hindered the acquisition of speech and language skills were specifically noted.

Results: Among the 25 males and 13 females in the age range of 1-20 years, there were 21 cases of cleft palate, three cases of cleft lip, 11 cases of cleft lip and palate, and three cases of submucous cleft. Ankyloglossia (n=4), bifid uvula (n=1) and micrognathia (n=1) were the associated congenital deformities. Nine patients had delayed motor milestones, while 18 patients had delayed speech milestones. Other associated conditions include, muscle coordination difficulty (n=1), intellectual disability (n=9), borderline intelligence quotient (n=3), spastic cerebral palsy (n=1), autism spectrum disorder (n=2), seizures (n=1), orthodontic abnormalities (n=7), Pierre-Robin syndrome (n=1), hydrocephalus (n=1), conductive hearing loss (n=8), tympanoplasty (n=3), mastoidectomy (n=1), visual problems (n=2), and hypernasality (n=24). Misarticulation was noticed in all the 38 patients. Cognitive skills were affected in five patients, and linguistic skills were affected in nine patients.

Data on family history revealed CL/P (n=3), hearing loss (n=1), intellectual disability (n=1), seizures (n=2), and stuttering (n=1). Among the birth history data, prematurity (n=2), first trimester typhoid (n=1), gestational diabetes (n=1), and birth asphyxia (n=1) were noticed.
Thirty-two patients underwent reconstructive surgery at various ages ranging from three months to 14 years.
Discussion: CL/P-affected children have a range of medical issues and complications, which makes necessary a multidisciplinary team of healthcare providers, including medical professional, clinical nurse, orthodontist, speech pathologist, audiologist, psychologist, feeding therapist, nutritionist, and geneticist. In this setting, the medical issues faced by these children could be comprehensively addressed in the most efficient manner aiming for the best aesthetic and functional outcome.

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