A Few Objective Measurements Of Quality Of Voice In Cleft Palate Individuals

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Voice plays an important role in speech communication. The production of voice depends on the synchrony between respiratory, phonatory and resonatory systems. Anatomical or physiological deviations in any of these systems would lead to voice disorder. Cleft palate is one of the anatomical deviation of speech mechanism. This alters the resonatory system of speech production mechanism affecting both resonatory and phonatory aspects of voice.

The presence of voice disorders in individuals with cleft palate have been documented by many investigators. These investigators have reported phonatory problems such as hoarseness (both with and without vocal cord pathology), breathiness, reduced loudness, deviant pitch, restricted pitch range and tensed strained vocal quality.

The present study was designed to investigate the laryngeal functions and amount of noise component in the voice of cleft palate and lip individuals and to compare them with normals using pitch perturbation, intensity perturbation and LTAS measurements.

In this study 13 cleft palate and lip subjects (6 males and 7 females) in the age of 8 years to 25 years were studied using laryngograph (Kay Elemetric Corporation), PC-AT Computer and Philips F6121 stereo audio recording deck with AKG D222 Cardoid dynamic microphone.

The measurement for the following parameters were obtained for three vowels /a/, /i/ and/u/ phonated at comfortable pitch and loudness and for Kannada voice passage;

1) Relative average perturbation for frequency
2) Directional perturbation factor for frequency
3) Relative average perturbation for intensity
4) Directional perturbation factor for intensity
5) Alpha, beta and gama ratio of LTAS.

The data obtained was compared with normative data. Basic descriptive statistical analysis and Mann Whitney "U" Test was carried out to findout the significance of difference between normals and cleft palate and lip individuals in all the above para-meters.

The following results were obtained;

1. There is no significant difference between cleft palate individuals and normals for vowels /a/, /i/ and /u/ in terms of relative average perturbation for frequency and intensity.
2. There is no significant difference between cleft palate and lip individuals and normals for vowels /a/, and /i/ and /u/ in terms of directional perturbation factor for frequency and intensity.
3. There is no significant difference between cleft palate and lip individuals and normals in terms of alpha, beta and gama ratio for Kannada voice passage for LTAS measurements.

The absence of significant difference in voice perturbation and LTAS between normals and individuals with cleft palate and lip may indicate normal laryngeal function in individual with cleft palate and lip. This may be attributed to (a) Absence of higher glottal resistance due to the absence of a separate side tube in cleft palate and lip cases. (b) Improper therapeutic procedures to reduce nasality and improper learning of compensatory mechanism may cause hoarseness, thus leading to higher voice perturbation. In the present study none of the subjects had undergone therapy. However, the results of Zajac and Linville (1989) showed significant difference between normals and individuals with VPI in terms of pitch and intensity perturbation. The authors attributed this difference between means to increased glottal resistance, increased respiratory effort and altered air flow dynamics. The contradictory results obtained by Zajac and Linville (1989) warrant further detailed study of laryngeal behaviour in cleft palate and lip individual with VPI and individuals with cleft palate and lip as a separate group. It also suggested to study voice perturbation before and after the therapy for the reduction of hypemasality.