Acoustic and Temporal Parameters in Malayalam Speakers using different types of T.E.P. Prosthesis

M. Sunitha

Student, A.I.I.S.H, Mysore

Rehabilitation of a laryngectomee aims at restoring the pre-operative condition of the patient as far as possible in terms of psychological, physiological, social and economic status i.e. basically by restoring voice. This is achieved by the efficiency of the patient in making use of his remaining structures for speaking.

Different methods for the restoration of voice following laryngectomy have been developed such as Oesophageal speech, electronic artificial larynx. But with the development of T.E.A. technique (Singer and Blom 1980), T. E. speech has become widely accepted method of alaryngeal speech. T.E. speech is achieved when pulmonary air is directed through the prosthesis to vibrate the RE. segment and produce voice. Blom Singers duck bill prosthesis was developed first. Later many other prosthesis were developed in different parts of the world to overcome the drawback of existing prosthesis in terms of temporal, acoustic and perceptual parameters. In this study it was possible to study B.S. Duck Bill prosthesis, B.S. low pressure prosthesis and Indian prosthesis all being used by the same subject and they were compared with each other. The voice and speech sample from 4 T.E. speakers under three conditions (i.e., 3 types of prosthesis) were collected. They were analysed using computer programmes to obtain 16 parameters (acoustic, temporal and psychoacoustic).

Conclusion

There was no difference between the different types of prosthesies. (Duck Bill, Low Pressure and HRA) on the following parameters studied. It may be concluded that there is no significant difference between:-

1. Duck Bill Vs Low pressure prosthesis
2. Duck Bill Vs Indian Prosthesis
3. Low pressure Vs Indian Prosthesis in terms of the following acoustic, temporal and psychoacoustic parameters i.e.,

a. There is no significant difference in Fo in Phonation

b. There is no significant difference in Extent of fluctuation in frequency

c. There is no significant difference in Speed of fluctuation in frequency

d. There is no significant difference in Frequency range in phonation

e. There is no significant difference in Extent of fluctuation in intensity

f. There is no significant difference in Speed of fluctuation in intensity

g. There is no significant difference in Intensity range in phonation

h. There is no significant difference in Words per minute

i. There is no significant difference in Syllables per minute

j. There is no significant difference in Number of pauses

k. There is no significant difference in Mean pause time

I. There is no significant difference in % of pauses

m. There is no significant difference in Vowel duration

n. There is no significant difference in acceptability

o. There is no significant difference in Intelligibility

Limitations of the Study

Adaptation effect could have contributed to the better acceptability of the I.P. prosthesis. The subjects were made to read the same passage first using D.B., L.P. and I.P. prosthesis.

The subjects should get familiarity with each type of prostheses and then the sample should be recorded. This could not be done due to time limitation.

Recommendations

1. Other parameters may be studied with larger group

2. Studies on Synthesis may be carried out to confirm the role of spacing between the formant frequency in improving the speech inalaryngenl speakers.

3. Studies related to the articulatory aspects along with these parameters and their influence on acceptability and intelligibility in T.E. speakers would help in determining the importance of the parametres considered in the present study.