DEVELOPMENT AND STANDARDIZATION OF A LIP READING TEST IN HINDI LANGUAGE TO DETECT PSEUDO-HYPACUSIS

SADIA SEHAR

Introduction

In its most simplest terms ' non-organic hearing loss means an exaggerated elevation of auditory thresholds'. Martin (1981), has defined the term as 'an apparent loss of hearing sensitivity without organic pathology, to explain the loss or with insufficient pathology to explain the extent of loss'.

Many tests have been developed to aid in the diagnosis of functional or non-organic hearing loss. Some of these tests are: Stenger test, Lombard test, Doerfler Stewart test, etc. (Alberti, 1970). Non-organic hearing loss cases can be identified by the use of a standardized test for lip reading ability (Utley, 1940), often with excellent results. Falconer (1960) also found that, as these patients emphasize their ability to lip read, they would usually submit to a' lip reading test'.

Accordingly, Falconer (1966), developed a 'lip reading test'which contains auditory as well as visual stimuli and consists of monosyllabic homophenous words which are nearly impossible to perceive by lip reading alone. The patient however, does not know this and responds in his usual way to sound and vision. Because most of his correct responses are a result of audition, the inadvertently reveals some degree of functional hearing loss, Goldman (1971), administered this test to different groups of patients and concluded that, the test helps to determine organic hearing levels definitely, while exposing the functional problem without obviously indicating to the subject that he has been caught.

Subba Rao (1981), constructed a lip reading test in Kannada language and found it to be of great use in predicting SRT which very closely corresponded to the true SRT.

Need for the Study

Hindi is our national language. Majority of the Indian's speak Hindi language and most of them may be monolingual. Thus, there is a great need for developing a lip reading test in Hindi language, to identify pseudo-hypacusis.

Plan of the Study

The study was planned to develop the test materials in Hindi language, and then to standardize the test materials on normal and hearing loss population.

Methodology

(a) Development of test material:

It was aimed at preparing a test with 160 words, these words were broadly divided into two forms. The 80 words which fell under each form were further classified to 4 lists of 20 words each. Every word in a list had its counterpart in the other 3 lists of the same form.

Example:/m na/ in list IA of form 1, had /b^h la/ in list lB,/p ta/ in list 1C and/b ta/in list ID.

The forms and lists were balanced as far as possible for its phonetic distribution. Four levels of presentation (with reference to SRT) were chosen. These levels were (1) SRT+10 dB, (2) SRT+0 dB, (3) SRT-10 dB and (4) SRT-20 dB. Consequently, depending on the SRT obtained for each subject, the presentation levels were varied. So, each list of form 1 was presented at 4 different levels, and thus under each form there were 16 different presentation combinations. These lists and levels were randomly ordered for presentation.

(b) Subjects:

1. *Normal Group:* 32 normal adults between the age range of 17 years and 24 years were taken for the study. There were 16 males and 16 females in the group. Criterion for selection was that they should have had Hindi as one of their languages during schooling and they had to pass a screening test for hearing at 20dBHL (ANSI, 1969) between the frequencies 250Hz and 8kHz. This group was further classified into 4 groups, each group was exposed to 4 of the 16 presentation combinations, which were selected randomly.

2. *Sensorineural hearing loss patients group:* It consisted of 6 patients selected on the criteria that they should have known Hindi language and that they should have sensorineural hearing loss of mild to moderate degree, it could be unilateral or bilateral.

Testing Procedure: - Madsen OB70, a two-channel diagnostic audiometer was used for testing. Testing was carried out in a two room situation, with the control room being brightly illuminated, to facilitate Up reading while the testing room was darkened.

Subjects SRT was found out using the spondee word list given by Abrol (1971), before commencing the lip reading test. While administering the test (lip reading) the carrier phrase ' *eh bhi kahiyia'* was spoken before presenting each word. Number of words repeated correctly at each presentation level was noted down.

Discussion and Results

To develop a criterion for predicting SRT, the articulation/gain function was drawn for the normal group. The criterion so developed was the level at

which the subject repeated 11 words correctly. The same criterion was found to be applicable to the sensorineural loss cases i.e., using the criterion established for normal subjects it was possible to predict SRT in sensori-neural loss cases also.

It was noted that when the patient did not repeat 11 words correctly the criterion for predicting SRT was the level at which the score nearest to 11 was obtained. It was also found that any of the forms could be used, individually for testing. In all the sensorineural hearing loss cases tested, the predicted SRT agreed with the obtained SRT with a difference between the two, not exceeding+5dB.

From the population tested, it could be said with certainity that the predicted and obtained SRT were very closely related. In this regard, the present study, showed, that the subjects SRT could be correctly predicted. It can be concluded, that the lip reading test can be used successfully to predict SRT in psuedo-hypacusis patients.

Conclusion

1. The lip reading test in Hindi language can be used successfully to predict speech reception thresholds in psuedo-hypacusis patients, accurately.

2. Either form 1 or form 2 or their combination can be used for testing the patient.

3. The recommended criterion for SRT prediction is the level at which **11** words are correctly repeated.

4. If this 11 word criterion is not met, any score near to 11 can be considered for predicting SRT.

Recommendations

1. The two forms containing a total number of 160 words can also be used as teaching materials while giving auditory training to hearing loss cases.

2. More data on the clinical population may be collected.

3. As lip reading appears to be a very easy and effective test, it is recommended that similar tests may be developed in all the major Indian languages.

REFERENCES

Alberti, P.W.R.M. (1970): ' New tools for old tricks ' *Ann. Oto. Rhinol. Laryngol.,* 79, 800-807.

Falconer, G.A. (1966): "A lip reading test for non-organic deafness' *J.S.H.D.,* 31, 241-247.

Martin, F.N. (1978): ' Pseudo-hypacusis: perspectives and puretone tests' (ch) (pp. 276-290) in J. Katz (Ed.). *Handbook of Clinical Audiology,* 2nd edition. The Williams and Wilkins Company, Baltimore.

Subba Rao, T.A. (1981): 'Development and Standardization of a lip reading test in Kannada language to detect psuedo-hypacusis'. An unpublished Master's Degree dissertation. Univ. of Mysore.

Weiss, B. Goldman (1971): 'Predicting organic hearing levels, The Falconer lip reading test for non-organic deafness' *J.A.R.,* 11, 223-226.