

해 tympanogram curve의 개형은 변동하지 않았다.

2. 개의 中耳에 있어서 中耳의 static compliance는 中耳腔의 空氣體積의 변동에 有意한 직선적인 증가를 보였으며, 中耳腔의 空氣體積 1 cc의 증가에 대해  $0.5 \pm 0.01$  cc의 증가율을 보였다.

3. 側頭骨의 含氣度가 양호해짐에 따른 中耳의 static compliance의 증가경향과 개의 側頭骨표본에서의 실험적인 근거로부터 側頭骨의 含氣度(x)와 中耳의 static compliance (y) 사이에  $y=0.19x+0.16 \pm 0.05$ 의 회귀 방정식을 얻을 수 있었다.

따라서 中耳腔의 空氣體積의 변동은 有意한 中耳의 static compliance의 변동을 일으키며, electroacoustic impedance bridge (Madsen ZO 70, 220 Hz의 probe tone을 사용)를 사용하였 中耳의 static compliance를 측정함으로써 臨牀的으로 側頭骨의 X線像을 촬영하지 아니하고도 간단히 側頭骨의 含氣度를 알 수 있을 것으로 생각되어, impedance audiometry의 臨牀診斷學的인 견지에서 또 하나의 가치를 보고하는 바이다.

## 8. Type C의 연구

전주에수병원

김동환 · 소진명

1946년 Metz가 처음으로 acoustic impedance bridge를 창안한 이후 많은 발전을 거듭하여 지금은 임상에 널리 이용되고 있으며 청각학에 많은 공헌을 하고 있다 우리나라에서도 이제 한국인의 정상치를 비롯한 많은 실험적 연구가 계속되고 있다.

저자는 본원에서 사용하고 있는 teledyne impedance (Model TA-ID)를 이용하여 나타난 Type C 때의 다음의 상관관계,

1. 이경소견과의 비교
2. 순음청력 역치와의 관계
3. Stapedial reflex와의 관계
4. 중이강내 압력과 참출물과의 상관관계

등을 조사하여 문헌고찰과 함께 보고하는 바이다.

## 9. Goodman氏 분류에 따른 청력장애도에 대한 임상적 고찰

연세의대

<지도 김 기 령 교수>

김영명 · 정진선 · 이정권

언어는 사람의 의사전달에 중요한 역할을 할 뿐 아니라 행복한 일상생활을 영위해 나가는데 있어서 기본적인 고도 필수적이며, 상호간의 문화교류면에서 중요한 수단이 된다함은 물론이다.

이러한 언어의 정상발육은 사람의 정상적인 청각기능을 통해서 형성되며, 만일 성장도중에 어떠한 원인으로 청력을 상실하게 되면 언어습득에 장애를 입게됨은 물론, 정서 및 인격형성에도 장애를 초래함으로써 결국에는 주위환경이나 일상생활에 적응하기 어려운 경우를 맞게 된다.

더욱이 오늘날의 사회구조가 고도로 복잡해짐에 따라서 청력장애자들에 대한 치료와 특수교육문제 및 그들의 취업분야 선택이나 사회적인 보상문제, 혹은 이를 판정하기 위한 신체검사기준치등을 정하는데 있어서 청력장애도의 설정과 적절한 분류가 절실히 요구되고 있다.

청력장애에 대한 분류는 1940년에 Beasley가 3등급으로 분류한 것을 비롯하여, 1950년에 A.M.A. (American medical association)에서 음의 주파수에 따른 언어청취범위를 백분율로 조사한 바 있고, 1959년에 A. A. O. O. (American academy of ophthalmology and otolayngology)에서, Huzing (1959), Silverman (1963) 등이 분류한 것을 기준으로 삼아오다가 그 후로 보청기의 성능 및 청력검사계의 발달을 바탕으로, 1965년 (I.S.O. 기준)에는 Goodman 씨가 좀 더 체계적으로 청력장애의 정도를 분류함과 동시에 그에 따른 치료 및 사회적 대책에 대해 기재한 것을 사용하고 있으나 아직까지 우리나라에서는 이에 대한 연구보고가 없는 터에 본 교실에서는 최근 1년간 난청을 주소로 본 이비인후과 외래를 방문한 환자중 180명을 대상으로 하여 Goodman氏 분류법에 따라 청력장애정도를 분류함과 동시에 우리 일상생활 가운데서 청력과 비교적 밀접한 관계가 있다고 생각되는 몇 가지 기준사항(대화, 방송, 학교 및 교회, 전화, 집단토의, 음원의 방향)을 지표로 하여 청력장애도와 각 사항의 응답재료를 검토한 바 있기에 보고하는 바이다.

bridge as 110 of children less than 6 years.

### **7. Experimental and clinical studies with impedance audiometry; the increase in air volume in the middle ear air system and the pneumatization of human temporal bones**

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The vibratory energy introduced into the external ear canal is changed by the mechanical factors of eardrum itself, the motility of ossicles, and the air cushion of tympanic cavity and the like.

This study was designed to investigate the volume of middle ear cavity and mastoid air cell system as a factor of determining the acoustic impedance of middle ear system. The author studied how the increase in air volume of middle ear cavity effects on the acoustic impedance of middle ear system with dogs' ears and researched the correlation between the degree of pneumatization of temporal bones and the acoustic impedance of middle ear system by comparing the radiological findings of pneumatization (Law's and Towne's projection) with the acoustic impedance measurements with Madsen ZO 70.

The result is as follows:

1. The tympanometric findings in control state revealed the curves of type A, and did not change in its configuration by the increase in the air volume of dogs middle ear system.

2. The static compliance of middle ear revealed a distinct and linear increase in proportion to the increase in air volume of middle ear system; the rate of increase was  $0.05 \pm 0.02$  cc of static compliance per cc of air volume.

3. Authenticated in the above result and the tendency to increase in static compliance in proportion to the increase in the degree of pneumatization of temporal bones, there was significant regression equation between the degree of pneumatization of temporal bones (x variable) and the static compliance

of middle ear system;  $y = 0.19x + 0.16 \pm 0.05$

It is suggested that the difference in volume of middle ear system plays an important role in the change of the static compliance of middle ear, and the author concludes that the measurement of static compliance of middle ear has clinical value as diagnostic means of evaluating the degree of pneumatization of temporal bones along with some radiological examination.

### **8. Clinical study of Type C in Impedance Audiometry**

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Since Metz first introduced the concepts of Impedance Audiometry in 1946.

Many pioneers studied for the development of the acoustic Impedance bridge. It is now widely used in clinical audiology and it plays an important role in otology.

Recently there was the literature stated on normal value of various test  $\bar{c}$  Impedance. This paper is dealing with the clinical evaluation of type  $\bar{c}$  in comparison with following subjects as;

1. Comparison with the otoscopic finding.
2. Correlation with the pure tone audiometry.
3. Correlation with the stapedial reflex.
4. Correlation between pathologic negative pressure range and middle ear fluid.

### **9. The clinical study for hearing handicaps by Goodman classification**

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Many persons, both children and adults, suffer from impaired hearing. The handicaps that arise from this are economic, educational and above all,

social. These persons need help, both medical and educational.

In order to plan facilities for the medical treatment, the rehabilitation, and the special education required by those with impaired hearing, we must know how many persons with hearing problems there are and the severity of their handicaps.

The first step in knowing these is to divide hearing impairment into categories of handicap.

Historically, since Beasley (1940) proposed progressive stages of deafness in terms of social disability, there was no well organized classification of hearing handicap except related material from Huzing (1959) and Silverman (1960).

In 1965, Goodman advocated a guide relating hearing threshold levels and degrees of hearing impairment.

During recent one year, on the bases of Goodman classification of hearing impairment and the report from Illinois Commission on children (1968), we have studied about hearing handicaps and speech life for the 180 cases, who visited to our otolaryngology department with hearing impairment. Now, we report the results of study with the referred references.

## 10. The Study on Method of Speech Audiometry and the Korean Word Lists Part 1: Normal Hearing Group

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Among the various audiometric test batteries, pure tone and speech audiometry was carried as routine.

During the past 20 years, there have been works on speech word list for Korean language.

As a preliminary work for standardization of Korean speech word list, the authors are intended to study on the factors of test methods with these

proposal speech word lists.

Now, authors has studied as following methods and materials and the results were obtained as followings.

### A. Materials and Methods

#### a. Word List

1. Paik Chun Kee (Paik)
2. Soh Jin Myoung (Soh)
3. Cynn Kyu Shik (Cynn)
4. Lee Jong Dam (Lee)
5. Hahm Tae Young (Hahm)

#### b. Test Method

1. ascending
2. descending

#### c. Test Material

1. live voice
2. Recorded male voice
3. Recorded female voice

### B. Results

1. Score of ascending method was better result than descending method.

2. Speech reception threshold and discrimination score were better in recorded female voice, live voice and recorded male voice in that order.

3. Speech reception thresholds among tested word lists were Hahm, Lee, Soh, Cynn and Paik in that order.

4. Discrimination score was highest with Cynn and Lee, Soh, Hahm, Paik in that order.

## 11. A Clinico-Statistical Analysis of Patient with Hoarseness in E.N.T. field

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Hoarseness, caused by any condition that interferes with normal phonatory function of larynx, is the most important symptom of the laryngeal disease.

The air pollution is the serious social problem today due to irritation of the respiratory mucosa and secondary respiratory disease.

It is significant to study whether, in resent