

The Distribution Hearing Loss in Elderly Patients at Sanglah Hospital in Denpasar since 2011-2014

Made Wiranadha

Department of otorhinolaryngology, Medical Faculty of Udayana university, Sanglah Hospital, Denpasar, Indonesia

Abstract: *Introduction:* the purpose of this study to determine the distribution of hearing loss in the elderly patients at Sanglah hospital 2011-2014. *Materials and methods:* elderly patients aged 60 years and over with hearing loss who come to the polyclinic ENT Sanglah Hospital were the period January 2011 to December 2014. The patients who met the inclusion criteria included in the study sample study conducted pure tone audiometric examination. *Results:* elderly patients with male sex experience more hearing loss than women manifold. *Discussion:* sensorineural hearing loss was mostly found in patients in group age of 60-70 years old over all patients visting polyclinic during the periode between january 2011 to december 2014.

Keywords: Elderly, sensorineural, hearing loss

1. Introduction

Hearing loss is a partial or total inability to hear sound in one or both ears. The distribution of hearing loss is categorized into three type which are conductive hearing loss, sensorineural hearing loss and also mixture of both type. It is also graded by level of severity: mild, moderate, severe and very severe. The definition of elderly is person who has attained the age of 60 years and above. In older people the process of degeneration on the entire structure so that the ear hearing loss can occur on the outer ear, the middle ear and the inner ear. The common type of hearing loss in the elderly is sensorineural hearing loss but can also be a mixture or conductive hearing loss. This study is aimed to shows the distribution of hearing loss in the elderly patient, to explain in more detail and to obtain data as future reference plan the action of the prevention and treatment of elderly patients.

2. The Method

This study design was retrospective descriptive study by taking secondary data from medical records of elderly patients with hearing loss who visited to polyclinic ENT Sanglah Hospital.

Variable research: hearing loss is a partial or total inability to hear sound in one or both ears. Enforcement of diagnoses obtained from history taking, examination mainly through examinations pure tone audiometric, age is a long-life, calculated from the year of birth, gender is a characteristic anatomy and physiology of male or female, the type of hearing loss verified by a comparison between the AC and BC, Type of hearing loss described through a comparison between AC, BC and the gap between the AC-BC. BC obtained on conductive hearing loss <25 dB, AC > 25 dB and there is no gap between the AC-BC. On the mixture obtained hearing loss BC > 25 db, AC > BC and obtained their AC-BC gap. And on sensorineural hearing loss obtained AC and BC > 25 dB, is obtained AC-BC gap, degree of severity of hearing loss and hearing loss is based on the results of pure tone audiometry were divided into mild, moderate, severe, very severe. The degree of hearing loss to the ISO standards, namely: 0-25dB normal, mild hearing loss 26-40dB, 41-55dB moderate hearing loss, 56-70dB moderate to severe

hearing loss, 71-90dB severe hearing loss, > 90dB very severe hearing loss, ear side which experience hearing loss, called unilateral when only one side of the ear experience and bilateral hearing loss if ear hearing loss on both sides. The study population was all elderly people with hearing loss who come to polyclinic ENT division neurotologi Sanglah Hospital and has been examined pure tone audiometry

3. Data Analysis

Data was taken from the medical records of elderly patients with hearing loss who come to polyclinic ENT Sanglah Hospital, Denpasar during the period January 2011 to December 2014. The results of the examination are recorded in the data collection sheets for subsequent analysis. The results of the study are presented descriptively in tables.

4. Results

Based on table 1, a total of 56 elderly patients with hearing loss or a total of 58.3% were male and 40 patients or 41.7% are female.

Table 1: Distribution of hearing loss and elderly patients by sex

Sex	n	%
Male	56	58,3
Female	40	41,7
Amount	96	100

Table 2 showed that 52 elderly patients with hearing loss or by 54.2% aged 60-70 years, 36 elderly patients with hearing loss or 37.5% aged 71-80 years, 5 elderly patients with hearing loss or 5.2% aged 81-90 years and 3 elderly patients with hearing loss or 3.1% over the age of 91 years.

Table 2: Distribution of elderly people with hearing loss by age

Age (years)	n	%
60 – 70	52	54,2
71 – 80	36	37,5
81 – 90	5	5,2
> 91	3	3,1
Amount	96	100

Table 3 showed that 142 with the results of audiometric examination sensorineural hearing loss, or by 74.7%, 15 with conductive hearing audiometric examination or by 7.9%, and 33 with the results of audiometric examination hearing loss mixture or 17.4%.

Table 3: Distribution of hearing loss and elderly patients based on the type of hearing loss

Type of hearing loss	n	%
Sensorineural hearing loss	142	74,7
Conduction hearing loss	15	7,9
Mixture hearing loss	33	17,4

Based on **Table 4** obtained 13 elderly patients with hearing loss or 13.5% experiencing mild hearing loss with a range of intensities between 26-40dB, 26 patients, or 27.1% experiencing moderate hearing loss with a range of intensities between 41-55dB, 31 elderly patients with hearing loss or by 32.3% who experience hearing loss was heavy with intensity ranges between 56-70dB, 14 elderly patients with hearing loss or 14.6% experiencing severe hearing loss with a range of intensities between 71-90dB and there are 12 elderly patients with hearing loss or 12.5% were experiencing very severe hearing loss with intensity above 90dB.

Table 4: Distribution of hearing loss and elderly patients based on the degree of hearing loss

Level of hearing loss (dB)	n	%
Mild hearing loss, 26-40dB	13	13,5
Moderate hearing loss, 41-55dB	26	27,1
Severe moderate hearing loss, 56-70dB	31	32,3
Severe hearing loss, 71-90dB	14	14,6
Very severe hearing loss, > 90dB	12	12,5
Amount	96	100

Based on **Table 5** obtained eight elderly patients with hearing loss or 8.3% on one side of the ear or unilateral and 88 elderly patients with hearing loss or by 91.7% on both sides of the ear or bilateral.

Table 5: Distribution of elderly people with hearing loss by the experienced ear hearing loss

Ear side who experience hearing loss	n	%
Unilateral	8	8,3
Bilateral	88	91,7
Amount	96	100

5. Discussion

This study is a retrospective descriptive study by taking the secondary data of elderly patients with hearing loss who came to the ENT department of Sanglah the period January 2011 to December 2014. A total of 96 patients met the inclusion criteria of research and then conducted a descriptive analysis. Lee and Karen, in 2010 found a link between the age of the increase in the hearing threshold of the elderly. The average hearing threshold value decreases 1dB each year at the age of 60 years and above and obtained an increase in the hearing threshold at frequencies 4000 and 8000 Hz.

Shapiro, 2004 reported that the hearing loss is included in the top three chronic conditions often experienced by the elderly.

Its prevalence increases with age. The prevalence of hearing loss in the 65-75 year age range is 20-40% and above 75 years of age increased by 40-66% prevalence. Corna, 2009 reported that the prevalence of hearing loss in the elderly patients increases with age. Research conducted in Australia by Mitchell in 2011 obtained of elderly people aged 60-69 years the prevalence of hearing loss 28.7%, in the group of elderly people aged 70-79 years the prevalence of hearing loss by 55% and in the elderly group aged 80-89 the prevalence of hearing loss by 79%.

6. Conclusion

In this study can be concluded that the distribution of elderly patients with hearing loss during the period January 2011-December 2014 which came to Sanglah Hospital is as much as 96 elderly patients with gender distribution, include men by 58.3% with an age range of 60-70 years most of 54.2% with most types of hearing loss and sensorineural types of 74.7% which are abundant on both sides of complaints hearing loss ears or bilateral amounted to 91.7%.

References

- [1] Salonen Jaakko. Hearing impairment and tinnitus in the elderly. University of Turku. Finland. 2013:p.1-68.
- [2] Hall, JW. and Antonelli, PJ. Assessment of peripheral and central auditory function. In: Bailey, BJ., Johnson, JT. Editors. Head & Neck Surgery - Otolaryngology 4th ed. Philadelphia: Lippincott Williams & Wilkins. 2006:p. 1927-41.
- [3] Moller, AR. Hearing: Anatomy, Physiology, and Disorders of the Auditory System 2nd ed. London: Elsevier Inc. 2006:p.3-17.
- [4] Shapiro. N, Shekelle. Quality indicators dor the management of hearing loss in vulnerable elder persons. UCLA head and neck surgery. United States of America. 2004:p.1-22.
- [5] Solheim Jorunn. Hearing loss in elderly. University of Oslo. Norway. 2013:p.1-122.
- [6] Mitchell, Gopinath. Five-year incidence and progression of hearing impairment in an older population. Ear Hear 2011;32:p.251-57.
- [7] Duthey Beatrice. Priority Medicines for Europe and the World "A Public Health Approach to Innovation". 2013:p.1-50.
- [8] Malinoff, Weinstein. Measurement of hearing aid benefit in the elderly. Ear Hear. 1989;10(6):p.354-56.
- [9] Lin. R, Thorpe. R, Gordon-Salant, Ferrucci. L. Hearing loss prevalence and risk factors among older adults in the United States. Journal of Gerontology: Medical Sciences; 2011;66(5):p.582-90.
- [10] Lieberman. D, Friger. M, Lieberman. D. Visual and hearing impairment in elderly patients hospitalized for rehabilitation following hip fracture. Journal of Rehabilitation Research & Development. 2004; 41(5):p.669-74.
- [11] Hall. J, Lewis. M. Diagnostic, Audiology, Hearing Aids and Habilitation Option. Ballenger's Manual of Otorhinolaryngology Head & Neck Surgery. BC Decker London. 2002(1):p. 1-3.

- [12] Fook. L, Morgan. R. Hearing impairment in older people: a review. Postgraduation Med Journal. 2000;76:537-41.
- [13] Loh. KY, Elango. Hearing impairment in elderly. Malaysia medical journal. 2005; 60(4):p.526-30.
- [14] Gussekloo, Bont, Eekhof. Auditory rehabilitation of older people from the general population. Br.J.Gen.Pract. 2003; 53(492):p.536-40.
- [15] Helvik, Jacobsen, Activity limitation and participation restriction in adults seeking hearing aid fitting and rehabilitation. Disabil.Rehabil. 2006;28(5): p.281-88.
- [16] Corna, Wade, Streiner. Corrected and uncorrected hearing impairment in older Canadians. Gerontology Med Journal. 2009;55:p.468-76.

Author Profile

Wiranadha MD is a staff of ENT department at Udayana University Sanglah general hospital Bali Indonesia, since 2004 until now. He has big interest and give big support in this study. He is now still focus on neurootology division.

