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Characteristics of deafness in the elderly patients at Sanglah general hospital period march 2020-march 2021

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Abstract

Introduction: Elderly is defined as an individual who has reached the age of 60 years and over. the number of elderly population in Indonesia currently reaches 28.7 million people, 10.6% of the total population of Indonesia. In 2020 Bali has entered the aging population, namely when the percentage aged 60 years and over reaches more than 10%. In line with the increasing life expectancy of people in Indonesia, health problems for the elderly will increase. One of the health problems of the elderly is hearing loss. Pathological changes in the hearing organ due to the degeneration process in the elderly can cause deafness.

Objective: To determine the characteristics of deafness in elderly patients at Sanglah General Hospital during the period March 2020-March 2021.

Methods: This study used a retrospective descriptive research design with cross sectional design, by taking secondary data from medical records of elderly patients with deafness who came to the ENT's polyclinic at Sanglah General Hospital during the period March 2020-March 2021.

Result: Characteristics deafness in elderly patients based on gender, the most found in male group compare to female group (53,3%: 46,5%), the largest age group was in the 60-70 years group as many as 33 people or 56.9%. Based on audiometric examination 39 elderly patients with deafness or 67.2% with sensorineural deafness. Characteristics based on the degree of deafness in elderly patients most found intensity in range between 56-70 dB, 20 people or 34.5% who experienced moderate deafness. The most common based on the side of the ear 53 people with deafness (91.4%) on both sides of the ear or bilateral.

Conclusion: This study found that deafness in elderly patients is more commonly found in male, at age groups 60-70 years old with the most type of sensorineural deafness type, the most degree of deafness is moderate to severe degree, and deaf complaints on the both sides.

Keywords: Deafness; Elderly; Characteristic; SNHL

1. Introduction

Elderly is defined as an individual who has reached the age of 60 years and over. Globally, the elderly population is predicted to have to increase. The elderly population in Indonesia is predicted to increase higher than the elderly population in the world after 2100. According to the Law of the Republic of Indonesia number 13 of 1998 concerning the welfare of the elderly, it is stated that an elderly person is someone who has reached the age of 60 years and over. According to data from the Central Statistics Agency, the number of elderly population in Indonesia currently reaches

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28.7 million people. This amount is 10.6% of the total population of Indonesia. The percentage of the elderly population in Bali Province increased to 12.47% in 2020, In 2020 Bali has entered the aging population, namely when the percentage aged 60 years and over reaches more than 10%. [1,2]

In line with the increasing life expectancy of people in Indonesia, health problems for the elderly will increase. One of the health problems of the elderly is hearing loss. The elderly have several vulnerabilities and risk factors which are generally caused by a decrease in physical, psychological, and developmental changes in the elderly. Hearing loss is a serious problem that is most often faced by the elderly because it can cause problems in communicating when socializing. [1]

The definition of hearing loss or deafness is the partial or total inability to hear sound in one or both ears. The division of hearing loss is divided according to the type of deafness: conduction deafness, sensorineural deafness and mixed deafness and based on the severity of the hearing loss: mild, moderate, moderate to severe, severe and very severe. The diagnosis of hearing loss is established through anamnesis, physical examination and supporting examination, especially with pure tone audiometry. [1]

Pathological changes in the hearing organ due to the degeneration process in the elderly can cause deafness. The type of deafness in the elderly is generally sensorineural deafness or sensorineural hearing loss (SNHL) but can also be conductive deafness or mixed deafness. There are quite a lot of elderly patients with deafness who come to the ENT's polyclinic at Sanglah General Hospital. Researchers are interested in conducting this study in order to provide characteristics of deafness in elderly patients at Sanglah Hospital for the period March 2020-March 2021 so that can describe in more detail and obtain reference data and planning preventive and therapeutic measures for sufferers. [1,2]

Knowing the description of deafness in elderly patients at Sanglah General Hospital is important because it can be used as a reference in early diagnosis so that it can provide appropriate therapy for patients with deafness and as basic data for further research.

2. Methods

This study used a retrospective descriptive research design with cross sectional design by taking secondary data from medical records of elderly patients with deafness who came to the ENT's polyclinic at Sanglah General Hospital, Denpasar from March 2020 to March 2021. Sampling was carried out by total sampling that is every patients who meet the research inclusion. Inclusion criterias were elderly patients with deafness who come to the ENT's polyclinic at Sanglah General Hospital, Denpasar period March 2020 to March 2021. The Exclusion criteria were patients with incomplete medical records. The research results are presented descriptively in the form of tables and narratives. The data are grouped according to the variables studied, then the data will be compared with data from previous studies.

An assessment and statement of the ethical suitability of this study was provided by the Research Ethics Commission of the Faculty of Medicine, Udayana University, Sanglah Hospital Denpasar (939/UN/14.2.2.VII.14/LT/2022).

3. Results

This research is a descriptive study using cross sectional design, it was found 58 samples who met the requirements as research subjects that met the inclusion and exclusion criteria.

Table 1 Characteristic of deafness in elderly patients based on Gender

Gender	N	%
Male	31	53.5
Female	27	46.5
Total	58	100

Based on Gender from a total of 58 elderly patients with deafness, The distribution of elderly patients as seen in Table 1 shows that the largest group of elderly patients with deafness as many as 31 patients or 53.3% were male and 27 patients or 46.5% were female.

Based on Table 2 It was found that 33 elderly patients with deafness or 56.9% aged 60–70 years, 19 elderly patients with deafness or 32.8% aged 71-80 years, 6 elderly patients with deafness or 10.3% aged 81-90 years and there are no elderly sufferers with deafness or 0% are over 91 years old.

Table 2 Characteristic of deafness in elderly patients based on Age

Age	N	%
60-70 years old	33	56.9
71-80 years old	19	32.8
81-90 years old	6	10.3
>91 years old	-	-
Total	58	100

Table 3 Characteristic of deafness in elderly patients by type of deafness

Type of deafness	N	%
Sensorineural deafness	39	67.2
Conduction deafness	5	8.6
Mixed deafness	14	24.2
Total	58	100

Based on type of deafness obtained from the results of the study, there were 39 elderly patients with deafness or 67.2% with audiometric examination results in the form of sensorineural deafness, 5 elderly patients with deafness or 8.6% with audiometric examination results of conduction deafness and 14 elderly patients with deafness or 24.2% with mixed deafness audiometry examination results.

Table 4 Characteristic of deafness in elderly patients based on the degree of deafness

Degree of deafness (dB)	N	%
Mild deafness, 26-40 dB	8	13.8
Moderate deafness, 41-55 dB	17	29.3
Moderate-severe deafness, 56-70 dB	20	34.5
Severe deafness, 71-90 dB	7	12.1
Very severe deafness, >90 dB	6	10.3
Total	58	100

Based on table 4 it was found that 8 elderly patients with deafness or 13.8% experienced mild deafness with an intensity range between 26-40 dB, 17 patients or 29.3% experienced moderate deafness with an intensity range between 41-55 dB, 20 elderly patients with deafness or 34.5% who experienced moderate to severe deafness with an intensity range between 56-70 dB, 7 elderly patients with deafness or 12.1% who experienced severe deafness with an intensity range between 71-90 dB and there were 6 elderly patients with deafness or 10.3% who experience very severe deafness with an intensity above 90 dB.

Based on table 5 there were 5 elderly patients with deafness or 8.6% on one side of the ear or unilateral and 53 elderly patients with deafness or 91.4% on both sides of the ear or bilaterally.

Table 5 Characteristic of deafness in elderly patients based on the side of the ear

The deaf side of the ear	N	%
Unilateral	5	8.6
Bilateral	53	91.4
Total	58	100

4. Discussion

This study is a retrospective descriptive study by taking secondary data of elderly patients with deafness who came to Sanglah Hospital Denpasar from March 2020 to March 2021. A total of 58 patients met the inclusion criteria of the study and then a descriptive analysis was conducted. Deafness is the partial or total inability to hear sounds in one or both ears. According to the Law of the Republic of Indonesia number 13 of 1998 concerning the welfare of the elderly, it is stated that an elderly person is someone who has reached the age of 60 years and over. In the elderly there is a degeneration process that affects the entire structure of the ear so that hearing loss can occur. The type of deafness in the elderly is generally sensorineural deafness but can also be conductive deafness or mixed deafness.

Characteristics based on gender in elderly patients with deafness showed that there were 37 (53.5%) male patients and 21 (46.5%) female patients where male patients were more than female patients. The results of this study are in accordance with research conducted by Mitchell in 2011 which reported that the prevalence of deafness in elderly patients in men was higher than in women, but the difference between men and women was not significant namely 1.16:1. [3] Research conducted by Lin R in 2012 also concluded the same thing where the ratio of men was slightly higher than women, namely 1.19: 1. [4] The results of this study were also in line with research conducted by Rahmawati in 2015 which said that in women rarely hearing loss occurs compared to men because in women there is the hormone estradiol which works through the beta estrogen receptor which can maintain the auditory system and trauma. This shows that men are more at risk of hearing loss than women because in men the hormone estradiol is measily.[5]

Characteristics based on age in elderly patients with deafness found the most age was 60-70 years, namely 33 people (56.9%), followed by age 71-80 years as many as 19 people (32.8%), and followed by age 81-90 years 6 people (10.3%). The results of this study are in accordance with the results of research conducted in Australia by Mitchell in 2011 found that the elderly group aged 60-69 years obtained a prevalence of deafness of 28.7%, in the elderly group aged 70-79 years the prevalence of deafness was 55% and in the elderly group aged 80-89 years, the prevalence of deafness was 79%. [3] This is also in accordance with research from Widuri and Kurniati in 2011 where in the elderly > 65 years experienced a decrease in the function of organs, especially the ear. This decline is felt as a lack of hearing, from mild to severe degrees. The degeneration process that occurs is thought to have a relationship with hereditary factors, eating patterns, metabolism, arteriosclerosis, infection, noise, lifestyle, or multifactorial. [6]

Characteristics by type of deafness in elderly patients with deafness obtained 39 elderly patients with deafness (67.2%) with the results of deaf sensorineural audiometry examination, 5 elderly patients with deafness (8.6%) with the results of an audiometry examination of conduction deafness and 14 elderly patients with deafness (24.2%) with examination results of the mixed deafness audiometry. The results of this study are in accordance with research conducted by Husni and Thursina in 2012 at RSUD Dr. Zainoel Abidin, Banda Aceh who stated that the most common type of deafness was sensorineural deafness as many as 173 people (49.43%) followed by mixed deafness 77 people (22.00%), conductive deafness 66 people (18.86%). [7] Salonen in 2013 describes as a whole several causes of deafness in the elderly including: genetics, chronic ear infections, otosclerosis, Meniere's disease, noise trauma, sudden sensorineural deafness, presbycusis, the aging process and Alzheimer's disease.[1] In some research reports and literature it is stated that most or more than 80% of deafness that occurs in patients with elderly is sensorineural deafness. In this study, 67.2% were obtained with sensorineural deafness. This is in accordance with several research reports and literature that the deafness of sensorineural is most commonly found in groups of people with elderly people. [8]

Characteristics based on the degree of deafness in elderly patients with deafness obtained 8 elderly patients with deafness (13.8%) who experienced mild deaf with an intensity range between 26-40 dB, 17 elderly patients with deafness (29.3%) who experienced moderate deafness with intensity range between 41-55 dB, 20 elderly patients with deafness (34.5%) who experienced moderate deafness with intensity range between 56-70 dB, 7 elderly sufferers with deafness (12.1%) who experience heavy deafness with a range intensity between 71-90 dB and there are 6 people with

elderly with deafness (10.3%) who experience deafness very severe with intensity above 90 dB. This is in accordance with the research conducted by Duthey, 2011 and Salonen, 2013 in his report explaining the incidence of deafness in Europe in the age group 60 years and over many obtained in the range of intensity 26-40DB and 41-60DB. Research reported by Wibowo et al get the most samples is sufferers with medium degree disorders of 37.5 % and sufferers with weight degrees are 8.3 %. [9,1]

Characteristics based on the side of the ear in elderly patients with deafness obtained 5 elderly patients with deafness (8.6%) on one side of the ear or unilateral and 53 people with deafness (91.4%) on both sides of the ear or bilateral. The results of this study are in accordance with research conducted by Husni and Thursina, 2012 which states that the percentage of the largest location of deaf is 80.57%, followed by one of 19.34%. [7] Salonen reports the prognosis of hearing loss or the quality of life of patients with elderly people with depending on the side of the ear that experiences deafness, if both sides are obtained deafness or hearing loss will interfere with the quality of life of patients in daily activities and social life which will ultimately reduce the life expectancy of the patient. [1] In this study, many elderly patients who suffer from hearing loss on both sides of the ear or bilateral, which amounted to 91.4%, which means that information and education are needed in patients and families of patients. The importance hearing aids. Expected to obtain a better life expectancy for elderly sufferers.

5. Conclusion

This study found deafness in elderly patients commonly found in male, with the majority age 60-70 years old, most commonly found sensorineural deafness, with the deafness degree is moderate to severe degree and in the both side of the ear.

Compliance with ethical standards

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Disclosure of conflict of interest

The author reports no conflicts of interest in this work.

Statement of informed consent

Informed consent is not required because taking secondary data.

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] Mitchell, Gopinath. Five-year incidence and progression of hearing impairment in an older population. Ear Hear. 2011;32:p.251-57.
- [4] 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.
- [5] Rahmawati, D. Factors associated with hearing loss in Department of Metal Forming dan Heat Treatment in Aerospace Indonesia (PERSERO). 2015; Page. 1-177.
- [6] Widuri, A. dan Kurniati, D. K. City living and environment hearing loss as risk factor for presbycusis, Mutiara Medica vol. 11.
- [7] Husni, T. dan Thursina 2012. Pattern of hearing loss based on Audiometry in ENT's polyclinic at Dr. Zainoel Abidin General Hospital, Banda Aceh. Syiah Kuala Medical's Journal, Page. 16-22.
- [8] Basic Health Research, Ministry of Health Republic Indonesia. 2013; page. 243-245.
- [9] Duthey Beatrice. Priority Medicines for Europe and the World "A Public Health Approach to Innovation". 2013; p.1-50