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Profile of Senile Cataract Patients at Klungkung Regional General Hospital in 2023

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Abstract: Senile cataracts are defined as cataracts that occur after age 50 due to aging. Cataract-induced blindness is preventable; however, it remains the second largest cause of blindness worldwide, following refractive disorders. This study aims to determine the profile of senile cataract patients at Klungkung Regional General Hospital in 2023. This study is a retrospective descriptive study utilizing data derived from patient medical records. A total of 2,040 visits with a diagnosis of senile cataract were obtained from 580 patients with 1,048 cataract eyes. Senile cataract patients at RSUD Klungkung are predominantly men aged 60-69 years, in an immature stage, with visual acuity <3/60. Most patients have no history of systemic comorbidities. A total of 27.1% of patients underwent surgery, 64.1% were observed, and the rest were referred due to other ocular comorbidities such as glaucoma, myopia, and retinal problems.

Keywords: senile cataract, blindness, visual acuity, profile.

INTRODUCTION

A senile cataract or age-related cataract is defined as a cataract that occurs over the age of 50 without a history of mechanical, chemical, or radiation trauma (Allen D, 2011). Senile cataract is one of the most common types of cataracts and affects more than 90% of people by age 70 (Ragni, 2024). Cataracts remain one of the leading causes of blindness worldwide. The World Health Organization (WHO) estimates that 65.2 million people worldwide experience visual impairment and blindness due to cataracts. Most of these cataract blindness cases occur in developing countries. Cataracts are expected to increase as the proportion of the elderly population increases. From the results of the Rapid Assessment of Avoidable Blindness in Indonesia in 2014 - 2016, it was found that the prevalence of blindness in Indonesia reached 3%, and most of it was caused by cataracts (80%). This prevalence of blindness is the highest compared to other Southeast Asian countries. The prevalence of blindness in Bali Province is estimated at 2%. According to WHO, the prevalence of blindness above 0.5% indicates that cataract blindness is still a health problem caused by

social or cross-sectoral issues. Data on the incidence of cataracts and cataract patients in a region can help provide an overview of the problems that still occur and be used as a basis for formulating policies or strategies in efforts to overcome blindness due to cataracts.

METHOD

This study is a descriptive study with a retrospective design using secondary data, which is medical record data. The samples of this study were all patients with a diagnosis of senile cataract who came to the eye clinic of Klungkung Regional General Hospital (RSUD) from January 2023 to December 2023. The diagnosis of senile cataract was made from of visual acuity examination, slit lamp, and funduscopy. The variables that will be studied in this study are gender, age, bilaterality, visual acuity, cataract stage, management, and systemic comorbidities. The age variable was divided into four categories, namely 50-59 years, 60-69 years, 70-79 years, and more than 80 years. The cataract stage was divided into immature and mature stages. The visual acuity used was uncorrected visual acuity (UCVA). This variable was divided into four categories based on WHO categorization: mild visual impairment (UCVA $\geq$ 6/18), moderate visual impairment (6/60 $\leq$ UCVA < 6/18), severe visual impairment (3/60 $\leq$ UCVA < 6/60), and blindness (UCVA < 3/60). Management was divided into three categories: observation, surgery, and refer. Systemic comorbidities were divided into no systemic comorbidities, hypertension, diabetes mellitus, hypertension, and diabetes, or other systemic comorbidities. Data obtained were analyzed using SPSS software version 30.

RESULT AND DISCUSSION

The results of the study obtained 580 patients with a diagnosis of senile cataract at Klungkung Hospital in 2023, with a total of 2040 visits. This number consists of 426 new patients and 154 old patients. Male patients were 51.4%, and female patients were 48.6%. The age range was dominated by patients aged 60-69 years (43.8%), with the mean age of the entire sample was 65.5 years. About 80.7% of patients had senile cataracts in both eyes. While 10.3% had cataracts in the right eye only, and 9% had cataracts in the left eye only. The stage of cataract was dominated by immature cataracts at 87.2%, and only 12.8% had mature cataracts. Patients' visual acuity varied, with the highest percentage of patients with visual acuity classified as blindness at 34.7%, followed by moderate visual impairment at 34.1%, mild visual impairment at 27.0%, and severe visual impairment at 4.2%. About 27.1% of patients underwent cataract surgery, 64.1% were observed, and 8.8% were referred to hospitals with more complete facilities. Most patients had no history of systemic comorbidities. 11.9% of them had a history of hypertension, 9.3% had a history of diabetes mellitus, and 4.3% had a history of hypertension and diabetes mellitus.

Table 1.1 Profile of Senile Cataract Patients

Variable	Frequency (f)	Percent (%)
Gender		
Male	298	51,4
Female	282	48,6
Total	580	100
Age		
50-59 year	137	23,6
60-69 year	254	43,8
70-79 year	164	28,3
>80 year	25	4,3
Total	580	100
Bilaterality		
Bilateral	468	80,7

Unilateral	112	19,3
Total	580	100
Cataract Stage		
Immature	914	87,2
Mature	134	12,8
Total	1048	100
Visual Acuity		
UCVA ≥ 6/18	283	27,0
6/60 ≤ UCVA < 6/18	357	34,1
3/60 ≤ UCVA < 6/60	44	4,2
UCVA < 3/60	364	34,7
Total	1048	100
Systemic Comorbidities		
No comorbid	395	68,1
Hypertension	69	11,9
Diabetes	54	9,3
Hypertension and diabetes	25	4,3
Other comorbid	37	6,4
Total	580	100

This study found that the percentage of male patients was higher than females, which was 51.4%. Other previous studies have shown mixed results. Research in Nigeria in 2024 obtained the same results; out of a total of 1472 patients, male patients outnumbered female patients with a ratio of 1.4:1 (Ndife et al., 2024). Meanwhile, research in India and Nepal in 2023 found a higher proportion of female patients, 61% and 54% (Rao et al., 2023) (Kant et al., 2023).

Data from one study summarizing research from 50 countries showed that cataract patients were more likely to be female except in Southeast Asia (48.5%) and the Middle East (47%) (Shah et al., 2011). According to Zetterberg and Celojevic (2014), the tendency for cataract incidence in women is related to reduced levels of the hormone estrogen as women enter menopause. The estrogen hormone is known to reduce the impact of oxidative stress, which is one of the factors that play a role in the process of cataract development. Women are also considered to have a higher life expectancy than men, resulting in a higher proportion of the elderly population being female. This also leads to a higher incidence of cataracts in women compared to men. Although cataract incidence is higher in women, other studies have shown that women are less likely to undergo cataract surgery. In this case, social factors, such as education level, employment status, and lower decision-making authority, play a role compared to men (Lou et al., 2017).

In this study, the average age of patients was 65.5 years. This figure is almost the same as the average age of patients in research in Malaysia, namely 64.5 years (Salowi et al., 2015). This average is younger than the average age in a study in Sweden by Lundström et al. in 2002, 76.1 years, and a study in the UK by Buchan et al. in 2020, 72.6 years. Cataracts tend to be found at younger ages in tropical and developing countries. This is thought to be due to several factors, one of which is sun exposure, as well as other environmental factors and genetics (Rajak, 2015).

The diagnosis of bilateral senile cataracts in this study was 80.7%. Senile cataracts usually occur bilaterally, although sometimes they are not symmetrical between the right and left eye and the onset is not exactly the same (Ragni, 2024). Of the 10.3% of patients with unilateral cataracts in this study, some had previously undergone cataract surgery in the other eye, resulting in the diagnosis of unilateral cataracts.

In the visual acuity category, the percentage of patients with blindness and severe visual impairment was 38.9%, moderate visual impairment was 34.1%, and mild visual

impairment was 18.2%. In comparison, a study by Shah et al. that summarized data from 50 countries found that patients' visual acuity was dominated by blindness and severe visual impairment at 29%, while moderate visual impairment was at 31%. A 10-year study in Malaysia showed an increasing trend in the percentage of cataract patients with mild to moderate visual impairment and a decreasing percentage of patients with severe visual impairment and blindness. Blind patients decreased from 62.6% in 2002 to 47.7% in 2011. Patients with mild to moderate visual impairment increased from 35.2% to 48.5% in 2011 (Salowi et al., 2015). The same trend also occurred in developed countries, such as the UK and Ireland, where patients with visual acuity <6/60 decreased from 15% in 1997 to 1.6% in 2000 and finally to 0% in 2011 (Shah et al., 2011). It is evident that the percentage of patients with blindness is much lower in developed countries such as the UK and Ireland than in developing countries like Malaysia and Indonesia. According to Shah et al., the low rate of blindness in developed countries suggests that the number of cataract surgeries performed is more significant or at least comparable to the incidence of cataract-induced visual impairment. Indirectly, the sufficiency of cataract surgeries in a region can be inferred through the proportion of patients with severe visual impairment. Regular data collection can help assess the state of cataract blindness management (Shah et al., 2011). Currently, there has yet to be data collected on the visual acuity of cataract patients in Klungkung before 2023, so the development trend cannot be observed. Collecting related data regularly in the future could provide valuable insights into the problems caused by cataract disease in the Klungkung area.

From the data obtained, cataract patients at RSUD Klungkung are only divided into two stages, namely the immature stage and the mature stage. Most of the cataracts in this study were immature stage cataracts, and only 12.8% were mature stage cataracts. In patients with immature *cataracts*, *phacoemulsification* surgery was performed; *small incision cataract surgery* (SICS) was performed in patients with mature cataracts. Of the 580 patients, 157 underwent surgery, 372 were observed, and 51 were referred. These referred patients usually had other comorbid eye diseases such as glaucoma, high myopia, and retinal problems. Some patients who were still under observation had been recommended for surgery but had not agreed, so they were kept under observation. In cataracts, the definitive management is surgery. To date, there is no medical therapy that can cure cataracts. However, some drops containing calcium iodide or potassium iodide salts are said to inhibit cataract development, especially in the early stages. However, to date, there have been no conclusive studies on this. Another non-surgical management that can be done is the provision of glasses. However, the size of spectacles in cataract patients often changes rapidly, requiring regular rechecks (Ragni, 2024) (AAO, 2024).

Besides age and sun exposure, other risk factors for senile cataracts include systemic diseases such as diabetes and hypertension (AAO, 2023). Of the 580 patients, most had no systemic comorbidities. Patients with hypertension constituted 11.9%, while those with diabetes mellitus represented 9.3%. Patients with both hypertension and diabetes mellitus accounted for 4.3%. The remaining 6.4% had other systemic comorbidities, such as lung and heart disease. When compared with previous studies in India in 2023, senile cataract patients with hypertension were reported to be 18.3%, and those with diabetes mellitus made up 9.8% (Rao et al., 2023). In comparison, the study in Malaysia found patients with comorbid hypertension to be as much as 40.5% and those with diabetes mellitus at 30% (Salowi et al., 2015). The results of the study in Malaysia show quite different proportions. When compared, the prevalence of hypertension in Indonesia and Malaysia is similar, namely 30.8% and 32.7% Meanwhile, the prevalence of diabetes mellitus was 11.7% in Indonesia and 22.6% in Malaysia (Indonesian Ministry of Health, 2023). One limitation of this study is that the data source is medical records, so the completeness of the records during the

examination is very dependent on them. The low proportion of hypertension and diabetes can be caused by patients who are not diagnosed or not recorded in medical records.

CONCLUSION

The characteristics of patients with senile cataracts at Klungkung Regional Hospital showed mixed results compared to previous studies. Further research with a better design can help provide a picture of the condition of cataract-related problems in the Klungkung Regency as a basis for determining the direction of policies and strategies to reduce the incidence of blindness due to cataracts.

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