Characteristics of Cataract Patients in Wangaya Hospital Bali Year 2019: A Descriptive Study

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Abstract—Cataract is one of the most common cause of visual disturbance with increasing incidence and prevalence in the world. It is characterized by a clouding of the normally clear lens and is associated with age but can also occurs congenitally or be caused by eye trauma. In Wangaya Hospital, blurred vision due to cataract is one of the eye cases that is often found in eye clinics with varying types of cataract, maturity, age, and sex. Therefore, researcher wanted to find out the characteristics of cataract patients in the eye clinic of Wangaya Hospital. The study was conducted at the eye clinic of Wangaya Hospital using secondary data obtained from the eye clinic register in January 2019 to December 2019. This research was a quantitative descriptive study with cross-sectional research design, sampling was done by a total sampling. Univariate analysis was performed for the collected data. We have collected 178 samples with prevalence of cataract in men was 52%, and that for woman was 48%. Most cataract was found at age of >65 years old (41%), and with senile type cataract accounting for 84%. Immature cataract was the commonest type (76%), with the same percentage between men and women which was 38%. More immature cataract occurred at age >65 years by 44% while more mature cataract were found at age 56-65 years (42%). Most common characteristics of cataract patients in Wangaya Hospital during 2019 were men, immature and senile cataract, and with age at >65 years old. The percentage of men and women in immature type cataract were similar.

Index Terms—Bali province, cataract, immature cataract, senile cataract.

I. INTRODUCTION

As we get older, the incidence of vision problems experienced by a person increases. The two most common causes of visual impairment in the world are refractive disorders and cataract, both of which are age related and are treatable in various countries including Indonesia with good and cost-effective results. Based on data from the World Health Organization (WHO) in 2012, cataract is the leading cause of blindness in the world [1]. Cataract is characterized by clouding of the lens that can be caused by disruption of the water control mechanism and the electrolyte imbalance or lens protein denaturation. Typical symptoms of cataract are reduced vision or blurred vision, without accompanied by pain in the eyes, redness of the eyes or other physical symptoms that are easily visible, reduced contrast, and often experience glare when seeing sunlight. Cataract are usually found in aging individuals, although cataract can be occurred due to traumatic event or as a birth defect. Lens clouding process can also be accelerated if the patient smokes, frequently exposed to UV light, and suffers from diabetes mellitus or hypertension. In Indonesia, in 2013, the prevalence of cataract of all ages was 1.8% or around 18,499,734 people. While the estimated incidence of cataract is 0.1% per year [2].

The high rate of blindness due to cataract in Indonesia not only makes cataract a health problem but also a social problem. Cataract can be classified by age, morphology and maturity. Based on age, cataract is divided into congenital cataract that occur in infants up to 1 year of age, juvenile cataract from 1 year to 50 years and senile cataract that occur at more than 50 years of age. Based on the morphology, cataract can be divided into nuclear cataract, cortical cataract and posterior subcapsular cataract. Cataract can also be distinguished by their maturity, namely insipient cataract, immature cataract, mature cataract and hypermature cataract [3-4]. In Wangaya Hospital, blurred vision due to cataract is one of the ophthalmology cases that is often found in eye clinics with varying types of cataract, maturity, age, and sex. Therefore, researchers wanted to find out the characteristics of cataract patients in the eye clinic of Wangaya Hospital.

II. METHOD

This research was a quantitative-descriptive with cross-sectional design, which the data sampling was conducted in one period of time. The data that have been used is a secondary data from the eye clinic’s register book in Wangaya Hospital from January 2019 until December 2019. Method of data sampling was total sampling where any data that included in inclusion criteria were taken. The collective samples were processed in univariate analysis and the result of patient’s characteristic would be shown in table and narration.

III. RESULT

In December 2019, the characteristics of 178 cataract patients visiting Eye Clinic in Wangaya Hospital during 2019 were taken. In this study, we found that there were more male patients than female with a percentage of male 52% and female 48%. Most of cataract patients were presented with age of > 65 years old (41%). Then followed by age 56-65 years old by 34% and age 46-55 years by 18%. In 2019 there were 1 early teenager cataract patients (12-16 years old) (1%), 2 late teenagers (17-25) (1%), 3 early adult patients (26-35 years) (2%) and late adult (36-45 years) as many as 6 patients (3%). There were no toddlers (0-5 years old) and children (5-11 years old) who were diagnosed with cataract during 2019. Based on the age distribution, senile cataract was found to be more common than other types of cataract (84%) while juvenile cataract were 16%. There were no patients diagnosed with congenital cataract during 2019. In this study, there were 76% immature and 24% mature cataract patients. The

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percentage of immature cataract that occurred in men and women in this study were similar, as much as 38%. Meanwhile the mature cataract in men were greater than in women (14% vs 10%). Based on age, immature cataract mostly occurred at > 65 years old (44%) while more mature cataract were found at 56-65 years (42%).

TABLE I: CATARACT PATIENTS DISTRIBUTION IN WANGAYA HOSPITAL IN 2019 BASED ON GENDER

| Gender | Number | Percentage |
|--------|--------|------------|
| Male   | 93     | 52%        |
| Female | 85     | 48%        |
| Total  | 178    | 100%       |

TABLE II: CATARACT PATIENTS DISTRIBUTION IN WANGAYA HOSPITAL IN 2019 BASED ON AGE

| Age (year) | Number | Percentage |
|------------|--------|------------|
| Baby and toddler (0-5) | 0      | 0%         |
| Children (5-11) | 29       | 16%        |
| Teenage (12-16) | 149     | 84%        |
| Adolescent (17-25) | 2       | 1%         |
| Young Adult (26-35) | 3       | 2%         |
| Adult (36-45) | 6       | 3%         |
| Elderly (46-55) | 32      | 18%        |
| Late elderly (56-65) | 31     | 17%        |
| Geriatric (>65) | 73      | 41%        |
| Total        | 178     | 100%       |

TABLE III: CATARACT PATIENTS DISTRIBUTION IN WANGAYA HOSPITAL IN 2019 BASED ON TYPE OF CATARACT

| Type of cataract | Number | Percentage |
|------------------|--------|------------|
| Congenital       | 0      | 0%         |
| Juvenile         | 29     | 16%        |
| Senile           | 149    | 84%        |
| Total            | 178    | 100%       |

TABLE IV: CATARACT PATIENTS DISTRIBUTION IN WANGAYA HOSPITAL IN 2019 BASED ON CATARACT MATURITY

| Type of cataract | Number | Percentage |
|------------------|--------|------------|
| Incipient        | 135    | 76%        |
| Immature         | 43     | 24%        |
| Hypermature      | 0      | 0%         |
| Total            | 178    | 100%       |

TABLE V: CATARACT PATIENTS DISTRIBUTION IN WANGAYA HOSPITAL IN 2019 BASED ON GENDER AND CATARACT MATURITY

| Number | Percentage |
|--------|------------|
| Male and Immature | 68      | 38%        |
| Male and Mature   | 25      | 14%        |
| Female and Immature | 67     | 38%        |
| Female and Mature | 18      | 10%        |
| Total             | 178     | 100%       |

TABLE VI: CATARACT PATIENTS DISTRIBUTION IN WANGAYA HOSPITAL IN 2019 BASED ON AGE AND CATARACT MATURITY

| Age (year) | Immature | Mature |
|------------|----------|--------|
| Baby and toddler (0-5) | 0% (0%) | 0% (0%) |
| Children (5-11) | 0% (0%) | 0% (0%) |
| Teenage (12-16) | 1% (1%) | 0% (0%) |
| Adolescent (17-25) | 2% (2%) | 0% (0%) |
| Young Adult (26-35) | 1% (1%) | 2% (5%) |
| Adult (36-45) | 3% (2%) | 3% (7%) |
| Elderly (46-55) | 26% (19%) | 6% (14%) |
| Late elderly (56-65) | 18% (32%) | 14% (22%) |
| Geriatric (>65) | 59% (44%) | 14% (32%) |
| Total             | 178     | 100%     |

IV. DISCUSSION

The occurrence of cataract is influenced by many factors such as aging, exposure to UV rays, exposure to oxidative stress, history of illnesses owned by patients, history of drug use, trauma or is carried since birth [5-7]. Globally, the prevalence of cataract is higher in women than in men and is located especially in the cortical area. These are influenced by the estrogen which protects the lens from cataract formation due to its anti-oxidative stress effect on the lens epithelium, but this hormone is reduced in menopause women [8]. In this study of 178 patients who were diagnosed with cataract during 2019 at Wangaya District Hospital there were more male (52%) than female patients (48%). In Zhang’s (2003) study, cataract prevalence increases with increasing age in both men and women and the presence of sexual hormones cannot explain this tendency [9]. This is also consistent with research conducted by Aini (2018) at Tugurejo District Public Hospital Semarang that the distribution of cataract patients by sex was not significantly different (p value = 0.83), which was 53.3% male and 46.7% female [10]. Differences in individual hormone levels, exposure to oxidative stress and UV rays, lens metabolite concentrations can affect cataract formation, and are subjects to our future research.

Based on age, we found most cataract occurred above the age of 65 years old and the most common type of cataract was senile cataract. Research conducted by Sonowal (2013) in India also showed the prevalence of cataract increased with age, most were aged ≥60 years old (90.81%), followed by ages 50-59 years old (31.46%), and the lowest prevalence were in the age 40-49 years old (10.38%) [11]. In epidemiological studies conducted in India, the most common cataract was senile cataract (54%) and 55% of cataract patients aged 60-80 years [2].

V. CONCLUSION

During 2019, there were more men than women cataract patients in the Eye Clinic of Wangaya Hospital with senile cataract type and the most age distribution > 65 years. Immature cataract are also more common and aged > 65 years old. The percentage of immature cataract in men and women is similar. There must be another research conducted in cataract patient to explore the risk factor of patient’s cataract and its characteristic.

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