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Profile of Open Cholecystectomy at Dr. Moewardi Hospital Surakarta January 2016 – December 2017 (Retrospective Study)

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ABSTRACT

Background. Cholelithiasis is a disease found in the general population throughout the world, and is influenced by several factors such as gender, age, and Body Mass Index. Gallstone disease is a common indication for surgery. The surgical procedure can be done in 2 ways, with an open cholecystectomy or laparoscopic cholecystectomy.

Methods. This study was conducted on patients who were treated at the Regional General Hospital dr. Moewardi Surakarta from January 2016 to December 2017 with retrospective sampling. The patient's age, gender, weight, height, and length of stay were taken based on the data listed in the patient's medical record.

Results. A total of 96 patients, consisting of 61 (63.54%) women and 35 (36.46%) men who met the criteria for inclusion in this study. The age of the patients ranged from 31 to 86 years with a mean of 52.16 years. According to the age category, namely <40 years and 40 years, there were 14 (14.58%) and 82 (85.42%) people from all respondents, respectively. Only 26 (27.1%) obese patients were found in this study. The mean length of post-operative hospitalization was 6.69 ± 3.47 days.

Conclusion. Gender and length of post-operative hospitalization in this study have characteristics that are in accordance with several previous studies.

1. Introduction

Gallstones are a combination of several elements that form a stone-like material that can be found in the gallbladder (cholecystolithiasis) or in the bile ducts (choledocholithiasis) or both.¹ Gallbladder disease (GSD) including cholelithiasis is a disease which can be found in general population around the world. In the United States, the prevalence of GSD is about 10% of adults, and the number increases with age.² The frequency of occurrence of gallstones increases 4 to 10-fold after the age of 40 years.³ The female to male ratio is 4 : 1.4 Prevalence of GSD in Asia ranges from 4.35-10.7%.² Study by Everhart et al. (2002) showed that the prevalence of gallstones in women was 10-20% in India,

5-12% in Taiwan, 5% in China and Japan, and 4% in Thailand.⁵

Risk factors other than age and gender that play a role in the formation of gallstones are obesity, diabetes mellitus, and lipid profile abnormalities.⁶ Gallstones are found in 25% of obese individuals.⁷ Obesity is associated with increased synthesis of cholesterol in the liver thereby increasing its secretion into bile.⁸ Insulin resistance predisposes to gallstone formation with a similar mechanism, namely increasing cholesterol secretion from the liver, decreasing bile salt synthesis, and/or interfering with gallbladder motility. Gallstone formation is also influenced by low HDL

levels, hypertriglyceridemia, and high homocysteine levels.⁶

Gallstone disease is a common indication for surgery. The surgical procedure can be performed in 2 ways, with open cholecystectomy or laparoscopic cholecystectomy.⁹ The open cholecystectomy procedure is one of the competencies that must be mastered by a surgical resident and is included in the curriculum of surgeon education.

2. Material and Methods

The study was conducted on open cholecystectomy patients who were treated at the Regional General

Hospital dr. Moewardi Surakarta from January 2016 to December 2017 with retrospective sampling.

Samples were taken from the patient's medical record data and recorded patient data which included identity, gender, age, weight, height, and length of treatment period after surgery.

3. Result

From the results of the medical record, it was obtained a sample of 96 patients, consisting of 61 (63.54%) female and 35 (36.46%) male who met the criteria for entering this study.

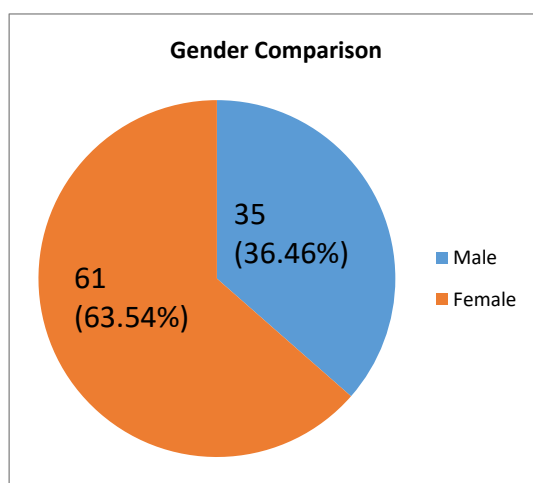


Figure 1. Gender Category Chart

Patient characteristics such as mean age, Body Mass Index (BMI), and length of post-operative hospitalization showed in Table 1.

Table 1. Sample Characteristics (n=96)

Characteristics	Value
Age (years), mean±SD	52.17 ± 11.95
Gender	
Male, n (%)	35 (36.46 %)
Female, n (%)	61 (63.54 %)
BMI (kg/m ²), mean±SD	23.43 ± 4.60
Non-obese, n (%)	70 (72.92%)
Obese, n (%)	26 (27.08%)
Length of hospitalization	
Post-Operative (days), mean±SD	6.69 ± 3.47

SD: standard deviation

The mean of patients' Body Mass Index (BMI) was 23.43 ± 4.60 kg/m² with 70 (72.92%) patients included in non-obese group. The patients' BMI was further categorized in more detail according to WHO Asia-Pacific criteria.

The age of the patients ranged from 31 to 86 years. According to the age category, namely <40 years and ≥40 years, there were 14 (14.58%) and 82 (85.42%) people from all respondents, respectively.

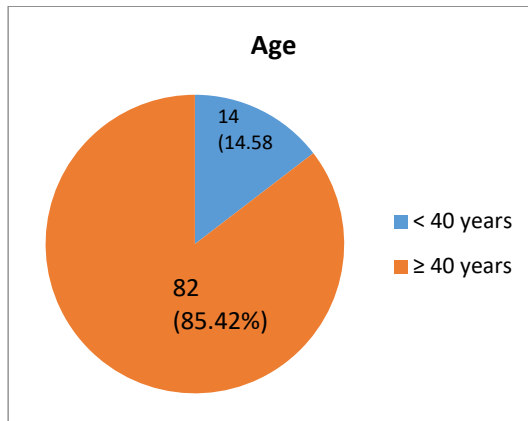


Figure 2. Patient Age Category Chart

The category of Body Mass Index (BMI) according to WHO Asia-Pacific classification was used to classify patients based on their obesity status.

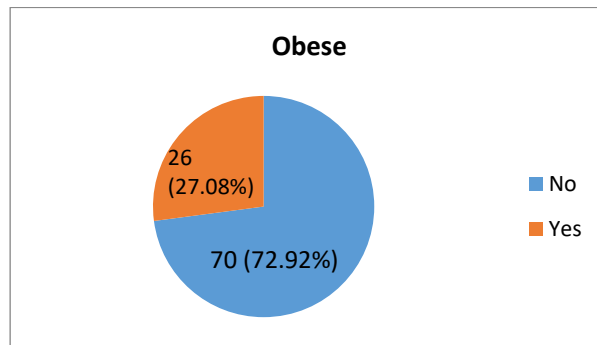


Figure 4. Obesity Status Category Chart

The mean length of postoperative hospitalization was 6.69 ± 3.47 days. Based on these results, the sample was categorized based on the length of postoperative hospitalization ≤ 6 days and > 6 days.

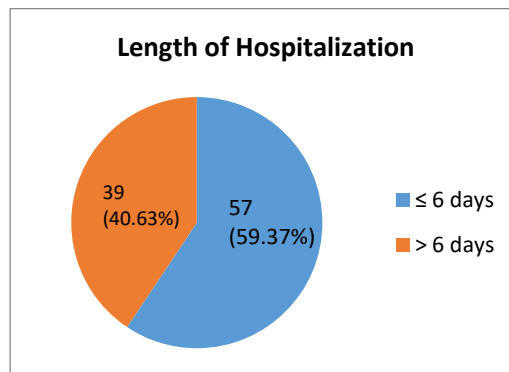


Figure 5. Post-operative Length of Hospitalization Category Chart

4. Discussion

In this study, there were more female patients than male patients (63.5% vs. 36.5%). The same thing was also found in a study by Sueta and Warsinggih¹⁰ at the Makassar Hospital which showed that gender was significantly associated with the incidence of gallstones ($p=0.001$). The presence of female hormones, namely estrogen, is one of the reasons for the increasing

number of female patients. Estrogen plays a role in cholelithiasis because its ability to stimulate hepatic lipoprotein receptors, thereby increasing cholesterol uptake from the diet and biliary secretion.¹¹

The age of the patients ranged from 31 to 86 years with a mean of 52.16 years. According to the age category, namely < 40 years and ≥ 40 years, there were 14 (14.58%) and 82 (85.42%) people from all

respondents, respectively. In previous studies, there were controversial results regarding the relationship between age and the incidence of gallstones. One study showed a significant association ($p=0.008$) between the age group less than 40 years and the incidence of gallstones¹⁰, while another study showed that the prevalence of gallstones increased with age, peaking in the sixth decade.¹² In this study, 75 (78.1%) patients were patients under 60 years.

Only 26 patients (27.1%) were obese in this study. A study stated that obesity is a potential risk for gallstones 4 times greater than people who are not obese, with the number of obese cholelithiasis patients than without obesity (97 vs 17 people).¹⁰ In line with this study, the study by Sodhi et al¹² showed that increased BMI is a risk factor for gallstone formation. This may be because obesity increases biliary cholesterol. Obesity is also associated with increased synthesis of cholesterol in the liver, thereby increasing its secretion into bile.

The average length of stay for post cholecystectomy patients in this study was 6.69 ± 3.47 days. The study by Harrison et al¹³ showed the mean length of stay after cholecystectomy was 2.99 days in a small hospital, 3.09 days in a medium hospital, and 2.59 days in a large hospital. Meanwhile, a study conducted in Semarang, Indonesia showed that the average length of hospitalization after cholecystectomy ranged from 2-7 days (mean 4.79 ± 1.18) days. Rooh-ul-Muqim et al (2008) stated that the average length of hospitalization for post-open cholecystectomy was 3.93 days.⁹

5. Conclusion

In this study, several characteristics of cholelithiasis patients who underwent an open cholecystectomy procedure at Dr. Moewardi January 2016 - December 2017 were obtained such as age, gender, Body Mass Index, and length of post-operative hospitalization. Gender and length of post-operative hospitalization in this study have characteristics that are in accordance with several previous studies.

6. References

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