THE RELATIONSHIP BETWEEN SEVERITY OF ACUTE CHOLANGITIS WITH MORTALITY LEVEL

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ABSTRACT

Introduction: Acute cholangitis is still a big problem in Indonesia, especially in Saiful Anwar General Hospital Malang. This is due to the presence of primary stones in the biliary tract, malignancy, and stricture. Several actions were taken in dealing with mortality due to acute cholangitis, so this study aims to determine the relationship of severity with mortality in patients with acute cholangitis.

Material and Methods: Descriptive analytic research was conducted from January 2013 to December 2017. Data were collected from medical records of acute cholangitis patients treated at Saiful Anwar General Hospital Malang. The research subjects were 211. Bivariate analysis was carried out on the association of cholangitis diagnoses including the relationship of USG results, actions, and outputs.

Results: The incidence and epidemiology of acute cholangitis are not affected by sex. Mild severity 0.014%; moderate 74.88%; and severe 23.97%. The measures obtained at all the highest severity were cholecystectomy with CBD exploration (mild 66.67%; moderate 36.71%; severe 14%), then external drainage measures performed in 23 patients (moderate 12.3%; severe 8%). Patients who undergo cholecystectomy with CBD exploration have mortality at a moderate level of 12.07% and severe 28.57%. Whereas the external drainage measures have moderate mortality of 15.79%.

Conclusion: The relationship of severity with mortality in patients with acute cholangitis is that patients with cholecystectomy with CBD exploration show a higher percentage than the external drainage measures.

Keywords: severity, mortality, acute cholangitis

INTRODUCTION

The prevalence of gallstones in the world has been reported to range from 20-35% and the risk of acute symptomatic cholangitis is around 0.2%. Acute cholangitis is caused by the presence of primary stones in the biliary tract, malignancy, and stricture^{2,3}. Acute cholangitis is a clinical syndrome characterized by fever, jaundice, and abdominal pain that develops as a result of stasis/blockage and infection in the bile duct. Cholangitis was first described by Charcot as a serious and life-threatening disease, but now it is recognized that severity can range from mild to threatening. Cholesterolethasis or the presence of stones in the bile duct / biliary is a major cause of acute cholangitis.^{1,2} Acute cholangitis generally refers to bacterial infection of the biliary tract.²

The case of acute cholangitis (class III) in TG07 (Tokyo Guidelines 07) refers to patients who have poor prognostic factors such as organ failure, shock, disturbance of consciousness, and disseminated intravascular coagulation. The frequency of acute cholangitis based on TG07 severity assessment criteria that have been reported are 7-25.5%

cases for shock, 7-22.2% cases for impaired consciousness, and 3.5-7.7% cases for Reynold pentad, assessment criteria TG13 severity is 12.3% or 23 out of 187 cases due to bile duct stones³

The Charcot Triad consisting of right upper abdominal pain, fever, and jaundice was first described in 1877 and is still used today to diagnose acute cholangitis clinically. Patients with acute cholangitis are treated with antibiotics and endoscopic biliary canal cleaning to treating the cause of the obstruction. However, studies in various countries report morbidity from acute cholangitis is still quite high after being given antibiotic therapy and biliary canal clearance.

This study was conducted to determine the relationship of severity with the level of mortality in patients with acute cholangitis in Saiful Anwar General Hospital Malang. This study aims as a reference prognosis in cholangitis patients in the future.

MATERIAL AND METHODS

This research is a descriptive-analytic using a retrospective design with a nonprobability sampling technique, that is, all acute cholangitis patients according to research criteria. Subjects were sorted according to inclusion criteria, they were patients who met the criteria for the diagnosis of acute cholangitis, had not been performed operatively in the hepatobiliary field, came with symptoms (Trias Charcot: fever, upper right abdominal pain, jaundice), and physical examination found: jaundice, pain upper right abdomen. The total sample of the study was 211 subjects. The research variables consisted of independent variables, namely the severity of acute cholangitis which was measured based on the Tokyo Guideline 13 and the dependent variable was the mortality rate. Research procedure by collecting medical records of acute cholangitis patients who were treated at Dr. Saiful Anwar Malang from January 2013 to December 2017.

RESULTS

In this study, the data taken in the medical record data of acute cholangitis patients in RSUD Dr. Saiful Anwar Malang from 2013 to 2017. The number of patients was 211 subjects. Of all subjects, women were the most, 109 (51.66%). Based on the results of USG, the highest prevalence of gallstones is 144 (68.25%). Sample distribution was calculated based on the severity of mild: 3 samples (1.42%), moderate: 158 samples (74.88%), and severe: 50 samples (23.70%). The characteristics of the full research subject can be seen in Table 1.

Table 1. Characteristics of research subjects $(n = 211)$								
Characteristics		Frequency	Percentage					
SEX	М	102	48.34					
	F	109	51.66					
USG	Stone	144	68.25					
	Tumor	64	30.33					
	Stricture	3	1.42					
SURGICAL METHODS	ED	23	10.90					
	CECBD	66	31.28					
	BYPASS	1	0.47					
	ERCP	4	1.90					
	NO	117	55.45					
OUTCOME	KRS	101	47.87					
	PAPS	56	26.54					

	DEAD	54	25.59
CHOLANGITIS DIAGNOSIS	Moderate	158	74.88
	Severe	50	23.70
	Mild	3	1.42

Table 2. Bivariate analysis results	based (on	ultrasound	results,	actions,	and	mortality
with cholangitis diagnosis							

	CHOLANGITIS DIAGNOSIS								
		Moderat						Total	Р
		е	%	Severe	%	Mild	%		
	Stone	134	84.81	8	16.00	2	66.67	144	
USG	Tumor	21	13.29	42	84.00	1	33.33	64	0.000*
St	Stricture	3	1.90	0	0.00	0	0.00	3	
	ED	19	12.03	4	8.00	0	0.00	23	
SUDCICAL	CECBD	58	36.71	7	14.00	1	33.33	66	
METHODS I	BYPASS	1	0.63	0	0.00	0	0.00	1	0.059
	ERCP	4	2.53	0	0.00	0	0.00	4	
	NO	76	48.10	39	78.00	2	66.67	117	
OUTCOME	KRS/PAPS	130	82.28	24	48.00	3	100.00	101	0.000*
	DEAD	28	17.72	26	52.00	0	0.00	54	0.000

*Significance difference p< 0,05

Stages of analysis were performed to see the relationship of severity with mortality in patients with acute cholangitis. Bivariate analysis was carried out to determine the relationship between cholangitis diagnoses including the relationship of ultrasound results, actions, and outputs. Based on the results of the bivariate analysis found 1 variable that was not statistically significant namely the relationship of the results of the action with the diagnosis of cholangitis, but after an analysis of the actions and the output obtained statistically significant results. The results of the bivariate analysis of the linkages of USG results, actions, and outputs can be seen in Tables 2 and 3.

CHOLANGITIS	SURGICAL		Total	n			
DIAGNOSIS	METHODS	KRS/PAPS	KRS/PAPS % DEAD		%	Total	р
Moderate	ED	16	84.21	3	15.79	19	
	CECBD	51	87.93	7	12.07	58	
	BYPASS	0	0.00	1	100.00	1	
	ERCP	3	75.00	1	25.00	4	
	NO	60	78.95	16	21.05	76	
Severe	ED	4	100.00	0	0.00	4	0.000*
	CECBD	5	71.43	2	28.57	7	0.000*
	BYPASS	-	-	-	-	-	
	ERCP	-	-	-	-	-	
	NO	15	38.46	24	61.54	39	
Mild	ED	-	_	_	_	_	-
	CECBD	1	100.00	0	0	1	

 Table 3. Bivariate analysis results based on the relationship between the results of the action, and the output on cholangitis diagnosis

NO	2	100.00	0	0	2	
ERCP	-	-	-		-	
BYPASS	-	-	-		-	

*Significance difference p< 0,05

DISCUSSION

This research is an analytic descriptive study with 211 subjects. Based on the analysis results there are differences in the number of men and women. There are more women than men. 102 men (48.34%) and 109 women (109.66%) sufferers of acute cholangitis. This ratio does not differ greatly so that sex is not a major risk factor for cholangitis. Based on ultrasound results, the prevalence of gallstones (68.25%) is more than that of tumors (30.33%) and strictures (1.42%). Acute cholangitis can be caused by primary stones in the biliary tract, malignancy, and stricture. The percentage of gallstones in the world is around 20-35% and the risk of acute symptomatic cholangitis is reported to be around 0.2%.^{2.3} Cholangitis occurs secondary to gallstones which obstruct the ductus choledochus. Based on the severity of cholangitis, the etiology results in mild and moderate with the highest percentage due to choledocholithiasis (66.67%; 84.81%) and in severe with the highest percentage due to tumors (84%).

Based on the Tokyo Guideline, the management of cases of acute cholangitis is as follows: the mild stage is to give antibiotics if no improvement is obtained then proceed with biliary drainage. The moderate or severe stage is carried out biliary drainage along with antibiotics, if no new improvement is found then proceed with ERCP or other operative measures.^{4,5,6} moderate 36.71%, and severe 14%. External drainage performed in 23 patients was moderate 12.3% and severe 8%. Based on research definitive action at RSSA which becomes the main choice is operative measures compared to external drainage. External drainage will be carried out if anesthesia tolerance has not been reached and requires stabilization first. In this case, the decision making operative action in patients with acute cholangitis becomes very influential in the health care center.

Based on the relationship of severity with mortality from acute cholangitis, in previous studies found the mortality rate reached 100%. Since the discovery of endoscopic retrograde cholangiography, endoscopic therapeutic sphincterotomy, stone extraction, and biliary stenting, the mortality rate has decreased to 5-10%. In this study, the highest mortality was found in the severe stage which was 52% compared to the moderate stage of 17.72%. Patients diagnosed with severe severity have statistically significant results that have a higher mortality rate than moderate or mild severity.

Based on the relationship between action and mortality in this study, the highest percentage was cholecystectomy with CBD exploration, namely mortality at moderate stage 12.07% and severe 28.57%. External drainage that is has mortality at a moderate stage of 15.79%. Operative actions at the severe stage also carried out external drainage that has very low mortality. The relationship between action and mortality shows statistically significant results. Factors that are often encountered in Saiful Anwar General Hospital Malang is often caused by sepsis and damage to vital organs because most of them are referral patients from health service centers in the region.

CONCLUSION

The incidence and epidemiology of acute cholangitis are not affected by sex. The relationship of severity to the outcome of the action is cholecystectomy with CBD exploration having a higher percentage than external drainage. The relationship of severity with mortality is that patients with cholecystectomy with CBD exploration have higher

mortality and moderate levels of mortality while external drainage measures have lower moderate mortality.

REFERENCES

- 1 Kimura Y, Takada T, Karawada Y, Nimura Y, Hirata K, Sekiomto M, et al. Definitions, Pathophysiology, and epidemiology of acute kolangitis and cholecystitis: Tokyo Guidelines. J Hepatobiliary Pancreat Surg. 2007; 14:15-26.
- 2 Fauzi A. Kolangitis Akut.Dalam:Rani A,Simadibrata M,Syam AF,Editor. Buku ajar Gastroenterohepatologi. Edisi-1. InternaPublishing. 2011; 579-90.
- 3 Kimura Y, Takada T, Strasberg SM, Pitt HA, Dirk J. Gouma, et al. TG13 current terminology, etiology, and epidemiology of acute kolangitis and cholecystitis. J Hepatobiliary Pancreat Sci. 2013; 20:8-23.
- 4 Takada T, Strasberg SM, Solomkin JS, Pitt HA, Gomi H, Yoshida M, Mayumi T. TG13: Updated Tokyo Guidelines for the management of acute kolangitis and cholecystitis. J Hepatobiliary Pancreat Sci. 2013; 20:1-7.
- 5 Miura F, Takada T, Strasberg MS, Solomkin JS, Pitt HA, Gouma DJ, TG13 flowchart for the management of acute kolangitis and cholecystitis. J Hepatobiliary Pancreat Sci. 2013; 20:47-54.
- 6 Gomi H, Solomkin JS, Takada T, Strasberg SM, Pitt HA, Yoshida M. TG13 antimicrobial therapy for acute kolangitis and cholecystitis. J Hepatobiliary Pancreat Sci. 2013; 20:60-70.