

Acalculous Cholecystitis Prevalence on Abdominal Ultrasonography Examination of HIV/HCV Co-infection Patients in Cipto Mangunkusumo Hospital

*Bambang Sutopo**, *Unggul Budihusodo***, *Irsan Hasan***,
*Rino Alvani Gani***, *Evy Yuniastuti****

* Department of Internal Medicine, Dr. Bratanata Hospital, Jambi

** Division of Hepatology, Department of Internal Medicine Faculty of Medicine University of Indonesia/Dr. Cipto Mangunkusumo General National Hospital, Jakarta

*** Division of Allergy-clinical Immunology, Department of Internal Medicine, Faculty of Medicine University of Indonesia, Dr. Cipto Mangunkusumo General National Hospital, Jakarta

ABSTRACT

Background: *Acalculous cholecystitis is commonly found in patients with human immunodeficiency virus (HIV) compared to general population. Surprisingly, the signs and symptoms are unremarkable. On the other hand, HIV/hepatitis C virus (HCV) co-infection is a common finding. The aim of this study was to evaluate whether HCV infection has any influence to HIV patients concerning acalculous cholecystitis prevalence.*

Method: *A cross-sectional study was performed in HIV/HCV patients who visited AIDS study group clinic at Cipto Mangunkusumo hospital from September 2008 to February 2009. The patients who met the criteria were examined physically and underwent abdominal ultrasonography. Routine blood count, alanine aminotransferase, aspartate aminotransferase, cluster of differentiation 4 (CD4) and serum albumin were recorded.*

Results: *Of 63 patients underwent ultrasonography examination, we found acalculous cholecystitis in 33 patients (52.3%), cholelithiasis and cholecystitis in 2 patients, and 28 patients were considered normal. Patients with CD4 less than 200 cells, tend to have acalculous cholecystitis more than those who had CD4 more than 200 cells.*

Conclusion: *The prevalence of acalculous cholecystitis among HIV/HCV co-infection is higher compared to those with HIV infection alone.*

Keywords: *acalculous cholecystitis, HIV/HCV co-infection, CD4*

INTRODUCTION

Acalculous cholecystitis occurs more often in human immunodeficiency virus (HIV) patients compare to general population.^{1,2} This gallbladder disorder, uniquely, has no apparent clinical signs or symptoms. Symptom found commonly includes mild abdominal pain. In order to established diagnosis, ultrasonography (USG) is still the diagnostic tools of choice due to its non-invasive characteristic, relatively

low-cost tool, and its availability in most health care centers. Hepatitis C co-infection in HIV patients occurs frequently.^{3,4,5}

Therefore, we would like to observe whether there is any influence of concomitant hepatitis C virus (HCV) infection on the prevalence of acalculous cholecystitis in HIV patients admitted to Cipto Mangunkusumo hospital. The aim of this study was to understand the prevalence of concomitant HCV infection on the occurrence of acalculous cholecystitis in HIV patients, by using USG examination.

METHOD

Subjects were patients with combined infection of HIV/HCV who were being taken care of an AIDS

Correspondence:
Bambang Sutopo
Department of Internal Medicine
Dr. Bratanata Hospital
Jl. Letjen Suprpto No. 7 Jambi 36122 Indonesia
Phone: +62-741-61642
Email: bsutopo44@yahoo.com

study group at Cipto Mangunkusumo hospital from September 2008 to February 2009. HIV patients were patients who had shown positive anti-HIV of serologic tests results and HCV patients were patients who had shown a positive anti-HCV of serologic tests result.

This was a cross-sectional study. The inclusion criteria were adult patients with combined HIV/HCV infection. The exclusion criteria were patients with positive hepatitis B infection (positive HbsAg), ascites, hypoalbuminemia (serum albumin < 3 g/dL); and decompensated cirrhosis patients.

Interviews were performed to all patients who met the above-mentioned criteria. We asked questions including history of fever, epigastric pain, upper right abdominal pain, or weight loss in the last 3 months. Physical examination was also performed to confirm fever, ascites, pain on the upper right abdomen on palpation, palpable mass in the epigastrium/upper right abdomen, and jaundice. The laboratory examinations includes routine blood test (hemoglobin, leukocytes, platelets), chemical pathology tests (ALT, AST, serum albumin), and serology tests (anti HIV, anti HCV, and CD4). Abdominal USG was performed at the Hepatology Procedure Room. Patients had at least 6-hours fasting prior to the USG examination. From the gallbladder examination, we obtained the data of gallbladder's size, contour, wall, and contents. Patients were diagnosed as having cholecystitis if the gallbladder wall thickness was 3 mm or more and acalculous cholecystitis was diagnosed if such criteria were fulfilled without any mass shadow inside the gallbladder.^{6,7,8}

Samples were collected from outpatients of AIDS study group clinic at Cipto Mangunkusumo hospital in September 2008 - March 2009. The minimum required sample size is 62 patients.

RESULTS

There were 63 patients being observed, 53 patients were male with range age 22 to 42 years. Symptoms complained by the patients included fever in nine patients, epigastric or upper right abdominal pain in seven patients, and nausea or loss of appetite in five patients. By physical examination we didn't found any significant abnormality in all patients. Fever, abdominal tenderness, jaundice, ascites, or abdominal mass were not found. All of the patients were on their HIV antiviral treatment.

Anemia (hemoglobin < 12 g/dL) was found in 9 patients, while 54 patients had hemoglobin > 12 g/dL in the last three months. From leukocytes count, we found 21 patients with leukopenia (leukocytes < 5,000/mm³), two patients with leukocytosis (leukocyte > 10,000/mm³), the other 40 patients had

normal leukocyte count. Thrombocytopenia (platelets < 150,000/mm³) was found in seven patients and 56 patients had normal platelet counts.

Table 1. Patients based on their sex and age group

Sex	Age group			Total
	20-29	30-39	> 40	
Male	24	28	1	53
Female	7	3	0	10

Table 2. Patients characteristics

Parameter	n
Symptoms	
Fever	9
Abdominal pain	7
Nausea, loss of appetite	5
Without symptom	42
Hemoglobin (g/dL)	
< 12	9
> 12	54
Leukocytes (per mm ³)	
Leukopenia (< 5,000)	21
Leukocytosis (< 10,000)	2
Normal	40
Platelets (per mm ³)	
< 150,000	7
> 150,000	56
Gallbladder ultrasonography	
Normal	28
Stone and wall thickenings	2
Wall thickening and sludge	10
Only wall thickening	23

AST level above the normal limit were found in 29 patients with two patients were diagnosed as having acalculous cholecystitis (6.8%). Increased ALT level was found in 45 patients, 11 of whom were with acalculous cholecystitis (24.4%). Increased level of both AST and ALT were found in 26 patients, 13 of whom were diagnosed with acalculous cholecystitis. Of 63 patients, the CD4 was approximately between 21-741 cells. Patients with CD4 more than 200 cells were 39 patients and 24 patients were with CD4 < 200 cells.

Of 63 patients who underwent the USG examination, we revealed findings such as no gallbladder abnormality in 28 patients, stone contents inside the gallbladder with concomitant wall thickness in 2 patients, contour abnormality in 4 patients. Wall thickening > 3 mm in 33 patients, 10 patients were confirmed to have sludge inside their gallbladder. The 33 (52.3%) patients indeed were defined as acalculous cholecystitis patients 16 (66.6%) of them had CD4 < 200 cells, and 17 (43.5%) patients had CD4 > 200 cells.

Table 3. Result of CD4 serology

CD4 amount	Number of patients	Acalculous cholecystitis n (%)
CD4 < 200 cells	24	16 (66.6)
CD4 > 200 cells	39	17 (43.5)

DISCUSSION

Young patients were dominant based on the age group distribution. There was only one patient who was older than 40 years old, the others were younger than 40 years old. It confirms the idea that the spread of HIV in Jakarta mainly through unsafe injection among drug users. Injecting drug users typically share one needle to the whole groups and they are usually the youth aged under 40 years old.⁴

Most of the patients have no complaint; there were 42 (66.6%) asymptomatic patients. About 9 (14.2%) patients had complaints of recurrent fever. Abdominal pain was complaint by 7 (11%) patients, and nausea with appetite loss was found in 5 (7.9%) patients. Such finding were relevant to the prior study conducted by Thuluvath et al indicating that there was only 12% abdominal pain among the HIV patients.¹⁰

Based on the routine blood examination, we found 54 patients with hemoglobin > 12 g/dL; while 9 patients had hemoglobin < 12 g/dL. It suggests that most patients were generally in a quite good condition, which obviously observed based on few complaints by small minority of the patients and most patients had a quite good hemoglobin level. Whether this was caused by the HIV treatment or not, it will need further study to confirm.

The liver enzyme tests suggested an increase of ALT level in 45 patients and 11 (24.4%) patients found to have acalculous cholecystitis. There were increased AST level in 29 patients, of whom acalculous cholecystitis only found in 2 (6.8%) patients. The interesting findings were the increase of both AST and ALT which occurred in 26 patients and 13 (50%) of them were suffering acalculous cholecystitis. Whether these patients with increased of both AST and ALT are vulnerable to suffer acalculous cholecystitis also needs further studies. Subjects with CD4 value > 200 cells were 39 patients, 17 (43.5%) of them were diagnosed acalculous cholecystitis. In contrast, 24 patients were with CD4 < 200 cells and 16 (66.6%) of them had acalculous cholecystitis. Such findings is relevant to the study by Waspodo et al, which found 68.3% acalculous cholecystitis.³ Based on this fact, it is obvious that the lower CD4 level in the patients, there is greater tendency of having acalculous cholecystitis.

Based on abdominal USG examination of 63 patients found normal gallbladder in 28 (44.4%) patients, cholecystitis and cholelithiasis in 2 (3.1%) patients and acalculous cholecystitis in 33 (52.3%) patients. Such findings was higher than results reported by Gianawati, in which only 27.9% of the population had acalculous cholecystitis.¹ Such difference is possible since Gianawati only observed the HIV patients, while our study evaluated patients with

co-infection of HIV and HCV.

CONCLUSION

Co-infection of hepatitis C virus in HIV patients increases the prevalence of acalculous cholecystitis. In this case, we could conclude that, the lower CD4 level in the patients, there is greater tendency of having acalculous cholecystitis.

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