Emerging Cases of Hepatitis C Virus and Human Immunodeficiency Virus Co-infection Among Narcotics Abusers in Pondok Indah Hospital, Jakarta

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ABSTRACT

***Background**: Narcotics and psychoactive substances abuse, particularly by intravenous route, currently is a major health problem affecting young Indonesian people. Consequently, there is an increasing incidence of blood-borne viral diseases, including hepatitis C virus (HCV) and human immunodeficiency virus (HIV) infections. This study was aimed to investigate the prevalence of HCV and HIV co-infection among narcotics abusers in Pondok Indah Hospital, Jakarta.*

***Method**: This was a cross-sectional study in Pondok Indah Hospital, Jakarta using patients' medical records. Data from patients with the diagnosis of mental and behavioral disorders due to various psychoactive substances and HIV-related diseases were retrieved to obtain demographic characteristics, history of drug abuse and serological testing. Patients were excluded if there were another organic mental disorders found or a history of blood transfusion prior to infection.*

***Results**: There were 157 cases of drug abuse collected between January 2000 and May 2005, 85.4% were men and their median age was 24 years old. The peak age group was 21-25 years old. Injection drug users (IDUs) were found in 72% of cases. Anti-HCV total antibody was found in 45.2% cases, including 2 nonIDUs, while anti-HIV antibody and combined anti-HCV/anti HIV antibodies were found in 13.4% and 7.6% cases, respectively. Anti-HCV positive patient are significantly younger than anti-HCV negative patients (27.9 + 8.2 vs. 23.7 + 4.4 years, $p < 0.001$), while the duration of use was not significantly correlated with HCV infection. Neither age nor duration of use was statistically significant with the presence of anti-HIV antibody. However, there is a significant correlation between the duration of drug abuse with HCV and HIV co-infection (6.0 + 3.0 vs. 4.1 + 2.8 years, $p = 0.027$).*

***Conclusion**: The prevalence of HCV and HIV co-infection among narcotics abusers in Pondok Indah Hospital was 7.6%. The emerging cases of hepatitis C and HIV infections during the last several years was significantly related to the increasing numbers of narcotics abusers.*

***Keywords**: hepatitis C virus, human immunodeficiency virus, co-infection, injection drug users*

INTRODUCTION

Narcotics and additive substances abuse is one of the most important community health problems in Indonesia, especially in large cities like Jakarta. Injection drug users (IDUs) in particular, are very susceptible to blood-borne viral infections. Besides hepatitis B, IDUs are also prone to hepatitis C virus (HCV) and human immunodeficiency virus (HIV) infections. HCV and HIV are the most commonly transmitted pathogens to drug users through the multi-person use of syringes and needles. Viral-contaminated blood may be transferred to the next user because a small residue of blood always remains in the needle and syringe.[1]

The incidence of HCV infection among intravenous drug abusers varies between 31% and 98% worldwide, thus, making the IDUs a potential reservoir of HCV in the community.[2] In Jakarta, hepatitis B virus (HBV) and

hepatitis C (virus) infections, either alone or as co-infection, had been reported to be much higher in IDUs compared to the general populations.[3] The exact prevalence of HCV or HIV infections in IDUs was not known; the first co-infection of HCV and HIV in Jakarta probably took place in 1999 and it was increasing thereafter.[4]

Before 2000, cases of HCV and HIV infections were rare and no cases of HCV/ HIV co-infection in Pondok Indah Hospital, Jakarta. Between January 2000 and April 2001, the hospital opened an exclusive ward dedicated for narcotic abusers. However, many objections then came up from the surroundings, and so it was closed. During this short period of time, a substantial number of patients had come for detoxification. Currently, the service is still available but the number of patients has decreased. The objective of this study was to investigate the profile of HCV and HIV infections among narcotics abusers in Pondok Indah Hospital, Jakarta.

METHOD

This was a cross-sectional study in narcotics and substance abusers, who came to Pondok Indah Hospital, between January 2000 and May 2005. Patient records were retrieved from Medical Record Department using the codes of International Statistical Classification of Disease and Related Health Problem 10th Revision (ICD-10)[5] of *mental and behavioral disorders due to use of opioids* (F11), *cannabinoids* (F12), *sedatives or hypnotics* (F13), *cocaine* (F14), other *stimulants* (F15), *hallucinogens* (F16), tobacco (F17), volatile solvents (F18), and other psychoactive substances (F19). Cases were also searched in patients with *HIV disease resulting in unspecified infectious or parasitic disease* (B20.9), *acute HIV infection syndrome* (B23.0), *unspecified human immunodeficiency virus* (B24). Patients were excluded if there was an underlying organic mental or behavioral disorders, suicidal tendency, other chronic diseases that used opiates as painkiller, or patients having blood transfusion as the method of transmission.

Blood sample were withdrawn from all patients. HCV and HIV antibodies were assayed by enzyme-linked immunosorbent assay (ELISA) method at our hospital laboratory.

RESULTS

There were 171 cases collected between January 2000 and May 2005; one case of HIV infection by blood transfusion and thirteen cases of drug intoxication were excluded i.e. two cases of heart disease, one case of lung cancer, one case of hyperemesis in pregnancy, and nine cases of organic mental disorder (depression, anxiety, acute psychosis). The prevalence in men was six times more frequent than women. Eighty percents of the patients are below 30 years old with the highest peak in 21-25 years old.

Table 1. Patient's Characteristic (N=157)

Characteristic	N	%
Sex		
❑ Male	134	85.4
❑ Female	23	14.6
Age (years old)		
Median, 24 years old		
Minimum, 16 years old		
Maximum, 54 years old		
❑ 16-20	26	16.6
❑ 21-25	64	40.8
❑ 26-30	36	22.9
❑ 31-35	17	10.8
❑ 36-40	6	3.8
❑ 41-45	4	2.5
❑ 46-50	2	1.3
❑ > 50	2	1.3
Duration of drug use		
Mean, 4.3 years		
Minimum, 4 months		
Maximum, 22 years		
Method of use		
❑ Oral	10	6.4
❑ Inhalation	25	15.9
❑ Intravenous	77	49.0
❑ Intravenous and oral	10	6.4
❑ Intravenous and inhalation	24	15.3
❑ Oral and inhalation	9	5.7
❑ Intravenous, oral, and inhalation	2	1.3

Intravenous route was primarily used by 113 or 72% of patients, either as single method, combined with inhalation and/oral route (Table 1). Inhalation and oral routes were used by 34 (21.6%) and 10 (6.4%) patients, respectively. The most frequent drug used by intravenously was *putauw* (91.6%) followed by *shabu-shabu* (5.6%), other opiates (1.9%), and cocaine (0.9%).

Hepatitis C antibody was found in 71 (45.2%), while anti-HIV was found in 21 (13.4%). HCV and HIV co-infection was found in 12 (7.6%) patients, i.e. 57.1% of HIV patients or 16.9% of HCV infection cases. Intravenous route is strongly correlated with the infection of HCV, HIV or both (table 2).

Patients with anti-HCV antibody positive were significantly younger than their negative counterparts. Anti-HCV antibody was already found in a patient with a short duration of drug abuse (4 months), while the minimum

Table 2. Serological Testing and the Method of Drug Abuse

Serology	Positive	Negative	p (χ^2)
Anti-HCV total antibody			
❑ Intravenous route	69	44	< 0.001*
❑ Non intravenous route	2	42	
Anti-HIV antibody			
❑ Intravenous route	21	92	0.001*
❑ Non-intravenous route	0	44	
HCV and HIV co-infection			
❑ Intravenous route	12	101	0.012*
❑ Non intravenous route	0	44	

** Significant at p < 0.05 level*

duration of drug abuse in anti-HIV positive patients was one year. The duration of drug abuse was not correlated with the presence of HCV or HIV antibody alone, but it is statistically significant with HCV/HIV co-infection (table 3).

Tabel 3. Serological Test Result and Age at Diagnosis and Duration of Drug Abuse

Serological test	Positive	Negative	p (t-test)
Anti-HCV total antibody			
Age (years old) mean ± SD	23.7 ± 4.4	27.9 ± 8.2	< 0.001*
Duration (years) mean ± SD	4.6 ± 2.4	3.9 ± 3.2	0.122
Anti-HIV antibody			
Age (years old) mean ± SD	27.1 ± 6.1	25.8 ± 7.2	0.456
Duration (years) mean ± SD	5.4 ± 2.9	4.1 ± 2.8	0.098
Anti-HCV and HIV			
Age (years old) mean ± SD	25.3 ± 5.1	26.0 ± 7.2	0.712
Duration (years) mean ± SD	6.0 ± 3.0	4.1 ± 2.8	0.027*

** Significant at p < 0.05 level*

DISCUSSION

HCV transmission occurs primarily by exposure to infected blood. However, some other routes of transmission might also exist, like sexual or household exposure to an infected contact.[2] In addition, IDUs could also have other behavioral risk, like tattooing, body piercing, and unsafe sexual intercourse, which were not addressed in this study.

Several studies have suggested that patients with HCV/HIV co-infection progress more rapidly to liver cirrhosis and liver cancer. In HCV-infected patients, HIV accelerates the course of HCV-associated liver disease progression. Both HBV/HIV and HCV/HIV co-infection is associated with increased liver fibrosis progression[6] and increased rate of liver cirrhosis,[7] hepatocellular carcinoma (HCC)[8] and liver-related mortality.[9] However, HCV has little or no effect on the response to antiretroviral therapy (ART), or on immunological, virological and HIV-related clinical disease progression.[10]

The prevalence of HCV/HIV co-infection (7.6%) and the proportion of anti-HCV-positive among HIV-positive patients (57.1%) in our study are lower than many other studies. A community-based survey among 379 IDUs in Sichuan Province of China found that the prevalence of HCV and HIV co-infection was 11.3%.[11] Other study in urban population of active injection drug users showed than 60% to 80% of those with HIV are also infected with HCV.[12] A survey of adults within the multicenter AIDS Clinical Trial Group (ACTG) suggested an overall prevalence of 16% to 20% in the Unites States among those infected with HIV.[13] In Brazil, a study in 1,457 HIV-positive patients showed that 17.7% of them were also HCV-positive.[14]

In Canada, the prevalence of anti-HCV antibodies was 81.6% among a cohort of 1,345 IDUs. Among subjects who were HIV positive, 95% were HCV seropositive, while among HIV negative subjects, 78% were HCV seropositive ($p < 0.001$). In contrast to our study, HCV seropositive IDUs in that study were significantly older than HCV seronegative IDUs (median age 35 vs. 25 years old). HCV seropositive subjects reported injecting for a median of 14 years, whereas seronegative subjects had been injecting for a median of only 3 years.[15]

The low rate of HCV infection in HIV patients could be due to under detected HCV antigen or antibody in our subjects. According to the latest recommendation, all HIV-infected patients should be screened using a third-generation anti-HCV antibody test. A positive result should be followed by evaluation for the presence of HCV-RNA, which indicates active disease. A negative anti-HCV antibody could be due to acute HCV (diagnostic window) or a blunted immune response. In this case, HCV-RNA should be measured.[10] The measurement of HCV-RNA in our hospital is not routinely done since the cost is very expensive for the patients and their families.

The presence of co-infection of HCV and HIV brings a special challenge in the clinical management of the patients. After the introduction of new antiretroviral agents, survival rates of HIV-infected patients have been increased worldwide. However, treatment with ART might possess a risk of hepatic toxicity. Since HIV co-infection accelerates the progression of liver disease caused by HCV, the clinical management and treatment of HCV should become a priority in medical institution receiving HIV-positive patients.[16] The European Association for the Study of the Liver (EASL) has

recently recommended the combination of pegylated interferon alpha and ribavirin as the treatment of choice for HCV infection in HIV-infected patients.[10]

CONCLUSION

The prevalence of HCV and HIV co-infection among narcotics abusers in Pondok Indah Hospital was 7.6%. The emerging cases of hepatitis C and HIV infections, during the last five years showed significant relation to increasing number of narcotics abusers.

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