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Co-infection HIV/AIDS and Hepatitis C

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Abstract: A lot of people who have HIV are also dealing with Hepatitis C. In order to determine the prevalence of hepatitis C in HIV/AIDS patients, we conducted this study. Forty seven HIV-infected patients, who were admitted to a University hospital in Zahedan (Southeast of Iran), for the evaluation and management of an HIV-related disorders between April 2000 and March 2005, were studied. All cases were evaluated for anti-HCV with ELISA method. Positive samples for HCV-antibody were also confirmed by western blot. Negative cases were evaluated for HCV-RNA. Nineteen cases (38.7%) were positive for anti-HCV. Among positive subjects, nine cases were confirmed by western blot that six cases were prisoners and had a history of injection drug user (IDU). Chronic liver disease was observed in three cases by liver biopsy. After tuberculosis, HCV was the second cause for hospitalization of HIV/AIDS patients. Co-infection with HIV and hepatitis C virus (HCV) is high, particularly in the cases that injecting drug use is the primary route of HIV transmission. Therefore, all people with HIV should be recommended to undergo HCV testing.

Key words: HIV/AIDS, hepatitis C, co-infection, prevalence, injection drug use

Introduction

Co-infection with HIV and hepatitis C virus (HCV) is frequent, particularly in areas where injecting drug use is the primary route of HIV transmission (Pouti *et al.*, 2003). The course of chronic hepatitis C seems to be accelerated by HIV co-infection. Highly active antiretroviral therapy (HAART) effectively prevents AIDS but this regimens do not suppress HCV replication. Instead, they are associated with transient flares of HCV replication. The latter may increase the liver damage in chronic hepatitis C (Lincoln *et al.*, 2003). Moreover, many antiretroviral drugs commonly used in HAART combinations are hepatotoxic. For these reasons, HAART could be associated with more severe liver damage and, as a consequence, with progression of liver fibrosis (Naruy, 1998). On the other hand, HAART-related immune restoration could contribute to lessen the liver damage associated with HCV infection. For these reasons, in co-infected persons, HCV infection progresses faster than if infected with HCV alone. However, HCV does not increase the rate of multiplication of HIV (Lincoln *et al.*, 2003; Anonymous, 2004). Also, it is showed that co-infected women are three to four times more likely to transmit HCV to their unborn children than women with HCV only (Anonymous, 2003). The CDC estimates that one-fourth of people with HIV/AIDS also are infected with hepatitis C. At present, liver disease accounts for 50% of deaths among those with HIV (Anonymous, 2001). Different studies have been done in the world to show the rate of this co-infection, but according to the population and the country the results are different (Anonymous, 2001). Now, IDU is the commonest risk factor for occurrence of HIV infection in Iran. Considering the

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Hepatitis C, generally transmitted through injection drug use and also the lack of enough studies in this field in our country, especially in the Southeast of Iran, the aim of this study was to investigate the prevalence co-infection HIV/AIDS with HCV in Zahedan, Iran.

Materials and Methods

The study describe a series of 47 cases with HIV/AIDS, aged 21 years and above, who were admitted to Boo-Ali hospital, Zahedan, Iran, during the period of April 2000 through May 2005. Boo-Ali hospital is a teaching hospital and a referral centre for infectious diseases located in Southeast of Iran that all patients with HIV/AIDS are admitted in this hospital. All patients were under the care of a single unit, department of infectious diseases. Decision to admit was taken by the treating physician and all patients were hospitalised for the evaluation and treatment of a suspected opportunistic infections or HIV-related disorders. Diagnosis of HIV infection was made using methods such as; ELISA and western-blot and HCV RNA. All patients who were referred to Boo-Ali hospital as 'HIV-positive' underwent retesting. These patients were admitted to infectious wards for co-infection and other opportunistic diseases and upon the diagnosis of opportunistic infection (OIs) and non-infectious opportunistic conditions in the hospital, the patients were treated. They were evaluated using a predesigned instrument regarding the demographic characteristics, risk factors for HIV infection, presenting symptoms and the cause of admission. Frequency of individual OIs are expressed as proportions (%).

Results

Out of 47 cases (42 men, 5 female; age range, 21-54 years) with HIV/AIDS, 19 cases (38.7%) were positive for anti-HCV. Among positive subjects, nine cases (19.1%) were confirmed by western blot. Of confirmed cases, six cases were prisoner and had a history of injection drug use (IDU). Nobody of cases who were negative for anti-HCV by ELISA method, showed positive test for PCR-HCV. Only 3 cases of confirmed HCV patients have underwent liver biopsy and chronic liver disease was observed in these cases. After tuberculosis, HCV was the second cause for hospitalization of HIV/AIDS patients. Injection drug use and having a history of immigration were the most common risk factors in HIV/AIDS patients that was recorded in history of patients, but cases who had a history of multiple sexual contacts with different partners were at lower risk. Frequency of co-infection HIV/AIDS with HCV and other OIs and risk factors in hospitalized patients are shown in Table 1 and 2.

Table 1: Frequency of the infectious causes for hospitalization of HIV/AIDS patients according to sex

Sex	Disease						
	Tuberculosis	Hepatitis C	Typhoid	Amebiasis	Esophagitis	Pneumonia	Cerebral Toxo
Male	23	5	4	5	2	2	1
Female	2	1	1	0	1	0	0
Total	25	6	5	5	3	2	1

Table 2: Frequency of HIV/AIDS according to risk factors

Risk factor	Number	(%)
IDU	9	17.3
Immigration	5	9.6
Sexual	4	7.7
Tattoo	2	3.9
Sex-worker	1	1.95

Discussion

The result showed that HCV is one of the most common HIV related infections that was led to hospitalization in HIV patients. Since, the risk factors for acquiring HCV are similar to those for HIV and on the otherhand in Iran, the most common risk factor for HIV infection is IDU, therefore, IDUs are susceptible to be infected with HIV and HCV co-infection. In our study, the most confirmed cases were prisoners and were IDUs. Hepatitis C Virus was detected in 1989 and now there is evidence of twin epidemics emerging in the some countries, because, HIV and HCV and B are spread in similar ways, and many people are infected with two or even all three of these viruses (Amin *et al.*, 2004). All may be transmitted through blood-to-blood contact (for example, sharing used needles), but HIV and HCV are more likely than HBV to be transmitted through IDU (Inciardi *et al.*, 2005). Recent studies show that IDU is the important and sometimes the commonest route for transmission of HIV and HCV (Dieterich, 1999; Brau *et al.*, 2002; Salehi *et al.*, 2005). The prevalence of HCV and HIV co-infection ranges from 30% to over 50% depending on the population (Dieterich *et al.*, 1999). Experts increasingly recommend that people with HIV should be screened for both HBV and HCV (Pouti *et al.*, 2003; Anonymous, 2004; Inciardi *et al.*, 2005). About 350,000 Americans are estimated to be co-infected. It is estimated that there are 10,000 New York State inmates infected with Hepatitis C (an HIV co-infection.) (Anonymous, 2003). Prisoners especially who are IDUs are at high risk for co-infection HIV/HCV. In January and February of 2001 30 ex-offenders infected with HIV/AIDS/HCV just released from New York State's prisons (Anonymous, 2004). In Lincoln study, the researchers found that the HCV infection was the second cause for hospitalization of HIV/AIDS patients (Lincoln *et al.*, 2003). This result was similar to our result. In our study, HCV was the second cause for hospitalized HIV/AIDS patients. Although, only three case of our patients have underwent liver biopsy but results showed that it was associated with an increased degree of liver fibrosis. All cases co-infection HIV/AIDS with HCV were male gender and had received the HAART regimens. Only one case did not continue his treatment. The study found a significant association between sex, and HIV infection and also, co-infection HIV/AIDS with HCV. Although all people with HIV should be recommended for HCV testing, our findings suggest that those with a history of IDU should be particularly targeted for early HCV counseling and testing. There are several limitations in present study that require consideration. First, the total sample size was small. Secondly, we studied only the hospitalised patients. Thirdly, all patients with confirmed HCV infection have not underwent liver biopsy. Although we are unable to generalize our findings outside our study population, however, the relatively low prevalence of HIV/HCV co-infection among subjects who had a history of multiple sexual contacts, shows that this factor is not an important risk factor for acquiring HCV infection at least in our patients. HIV/HCV co-infection and injecting drug use is consistent with the findings of other studies (Quan *et al.*, 1993; Brau *et al.*, 2002) and the parenteral nature of HCV transmission (Salehi *et al.*, 2005; Sharifi-Mood and Metanat, 2006). As more advanced immune deficiency has been associated with lower sensitivity of anti-HCV antibody testing (Amin *et al.*, 2004), all HCV-negative sera were re-tested for HCV RNA. Since, in our study, the total number cases and confirmed HCV cases were small and all patients did not received the HAART, therefore, we can not find relationship between HIV/HCV co-infection and HIV disease progression is consistent with the results of some early studies.

Conclusions

The present study identified that HCV was the second cause for hospitalization in HIV/AIDS patients and this infection is one of the most common HIV/related infection. Therefore, all people with

HIV should be recommended to undergo HCV testing. However, individuals with a history of injecting drug use or abnormal ALT levels should be particularly targeted for HCV counseling and testing.

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