Relative frequency of infections among hospitalized injecting drug user-HIV positive patients in Razi hospital, Ahvaz, SW Iran (2001-2003)

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Abstract
Frequency of infections in Injecting Drug Users (IDU) varies in different areas according to socioeconomic and geographic situation as well as Human Immunodeficiency Virus (HIV) infection rate. The present study was performed to determine the frequency of infections in IDU-HIV positive patients. Forty known cases of HIV infected (by positive ELISA and western blot tests) were investigated for various infections in Razi hospital in Ahvaz, South West of Iran during 2001–2003. Medical charts including age, duration of addiction, imprisonment, site of infection, signs and symptoms, laboratory findings, imaging result and echocardiography report were prepared. Data were analyzed in SPSS software by using descriptive statistical methods. Forty IDU-HIV positive male patients with a mean age of 25±6.3 years were included in this study. More than 50% of patients had a history of imprisonment. Bacterial infection diagnosed in 40% and viral infection in 100%. Three patients died due to mixed infection and AIDS. The obtained rate of infections in IDU-HIV positive in Ahvaz was very higher than expected. Rapid diagnosis of above mentioned infections, appropriate management and treatment can prevent or postpone progressing of AIDS.

Introduction
With respect to increasing number of IDU population in Iran, communicable diseases in whom are an important health problem [1]. These individuals act as sources of many dangerous infectious pathogens in the community [2]. HIV has spread considerably among IDU in parts of Asia and Latin America. Sharing of injection equipment and imprisonment are the strongest predictors of HIV infection in some area of Asia such as Iran [2, 3]. According to Iranian welfare organization report, 16.2% of addicted individuals in Iran are IDU while half of them shared needles [3].

IDU addicts are sensitive to various infections [2-4]. Because of immune system is suppressed in HIV infected persons, they are extremely sensitive to important and fatal infections such as viral, bacterial, fungal and parasite agents [2]. Published reports have described pneumonia, pulmonary tuberculosis, bacterial endocarditis, soft tissue infections, and viral hepatitis as the most common infectious diseases in this population [4-10]. Frequency of infections in IDU varies in different areas according to socioeconomic and geographic situation as well as HIV infection rate [2, 4]. The present study was performed to

determine the frequency of infections in IDU-HIV positive patients.

Patients and Methods

Forty HIV positive patients took part in the present study (2001–2003). They were known cases of HIV infected, registered in the Khuzestan Health Center by positive ELISA and western blot tests. They were referred to infectious disease ward in Razi hospital. They were investigated for various infections by culturing (isolation of infection agent), serology, skin test and direct examination (stool exam). Sputum smears were examined by Zeil Nelson method. Tuberculous meningitis was diagnosed by Cerebrospinal Fluid (CSF) analysis and adenosine deaminase test. Medical charts including age, duration of addiction, imprisonment, site of infection, signs and symptoms, laboratory findings, imaging results, echocardiography report, were prepared. Data were analyzed in SPSS software (V. 11.5) by using descriptive statistical methods.

Results

Forty IDU-HIV positive male patients, ranged 20-45 years with a mean age of 25 ±6.3 years were included in this study. More than half of them had a history of imprisonment due to addiction and its related social behavior. Bacterial infection was detected in 40% of patients (Table 1). Mixed infections were also diagnosed in three patients.

Table 1: Frequency of bacterial infection among IDU–HIV positive patients in Razi hospital

Clinical Features	Infectious agent	No. (%)
Endocarditis	*Staph. aureus*	3 (7.5%)
	Staph. Coagulas-Negative	5 (12.5%)
Abscess	*Staph. aureus*	4 (10%)
	Pseudomonas Spp.	1 (2.5%)
Sepsis	*Staph. aureus*	1 (2.5%)
	Staph. Coagulas-Negative	2 (5%)
Total		16 (40%)

Viral infections were identified in all patients (Table 2). Mycobacterium infection was detected in 90% by skin test. Pulmonary tuberculosis was also diagnosed in 45% using sputum smear staining (16 positive smears) and clinical feature (2 negative smears). TB meningitis was also detected in 5% of patients using CSF analysis too. Parasite infections diagnosed by serological tests or stool examination, *Toxoplasma gondii* (5%) and *Entomeaba histolytica* (5%). Three patients died due to mixed infection and AIDS (CD4+Tcell <500).

Table 2: Frequency of viral infection among IDU–HIV positive patients in Razi hospital

Clinical Features	Infectious agent	N (%)
Acute Hepatitis	Hepatitis B Virus	2 (5%)
Chronic Hepatitis	Hepatitis B Virus	10 (25%)
	Hepatitis C virus	20 (50%)
Asymptomatic	Cytomegalas virus	6 (15%)
	Herpes simplex virus	4 (10%)

Discussion

In this study all of the IDUs have shared in using unsterile needles. This is different from Mokri's [7] study in which 49% of IDUs have shared in using unsterile needles. Mean age of our patients (25 years) is lower than mean age of other patients (33-37 years) in previous reports [4, 6, 7]. This study shows that viral infections such as Hepatitis B Virus (HBV), Hepatitis C Virus (HCV) are the most common infectious agents in these patients. More than 75% of our patients had chronic hepatitis that is different from other reports. Ranjbar *et al*. [6] reports viral hepatitis in 23% and Asadi and Marjani [4] reports the same virus in 10% of their patients. This rate is varied from 30% to 70% in other reports [2]. These differences are due to different epidemiological, immunization programs and socioeconomic situations in various parts of the world. Since 1993 HBV vaccination has been a part of EPI (routine national immunization program) in Iran.

Infection with *Mycobacterium tuberculosis* was very common in the patients. We found that 50% of our patients had tuberculosis. This is not in agreement with Asadi and Marjani [4] (with 7%) and Jansa *et al*. [11] (with 21%). We believe that this high rate of tuberculosis in our patients is due to the fact that Razi hospital is a referral teaching hospital in Ahvaz for the patients at the final stages of HIV/AIDS positive infections. Sepsis and bacterial endocarditis are the most important causes of death in IDU-HIV positive patients, which is consistent with previous reports [2, 4, 6]. Diagnosis and treatment of this infection will increase the quality of life in these patients. Viral infections such as HBV and HCV are the most common infectious agents in these patients; so preventive measures (vaccination, precaution) and treatment can mitigate complications of these infections and increase the survival chances in IDU-HIV positive patients. Sepsis and bacterial endocarditis are the important causes of death in IDU-HIV positive patients. So isolation of infectious agents such as *Staphylococcus aureus* and Gram-negative bacilli (*Pseudomonas aeruginosa*) and treatment these patients may save their lives and improve the quality of their lives.

The impact of HIV epidemic on many parts of the developing world is already severe, but it will undoubtedly become worse as the number of people with AIDS and HIV related illnesses continues to increase over the next decades. The incubation period between infection and AIDS (the end stages of infection) is about 10 years but co-infections can decrease this time and lead to AIDS [2].

Conclusion
The rate of infection in IDU-HIV positive patients in Ahvaz is much higher than expected. A rapid diagnosis of the above mentioned infections and the appropriate management and treatment can prevent or postpone the progress of AIDS.

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