

A SEROLOGICAL STUDY OF HEPATITIS C AND HUMAN IMMUNODEFICIENCY VIRUS IN A COHORT OF INTRAVENOUS DRUG USERS IN QUETTA, BALOCHISTAN

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ABSTRACT

Objective: To determine seroprevalence of hepatitis C virus (HCV), hepatitis B virus (HBV) and human immunodeficiency virus (HIV) amongst drug abusers in Quetta, Balochistan.

Material and Methods: This Cross-sectional survey was conducted in Combined Military Hospital Quetta Balochistan, from June 2003 to Aug 2003. A total of 300 male drug abusers registered by an NGO were provided voluntary HIV, HBV and HCV testing. All participants were above 18 years of age and were residing in Quetta. Testing for HCV antibody and HBV surface antigen (HBsAg) was done by 3rd Generation Elisa (Adaltis), and for HIV antibody by ELISA (Genscreen) with confirmatory Western blot testing (BioRad).

Results: Among 300 intravenous drug users 1 (.33%) was anti HIV antibodies positive, 129 (43%) were HBsAg positive and 134 (44.7%) were anti HCV antibodies positive.

Conclusions: This study shows that there is a high incidence of HBV and HCV positive cases among intravenous drug abusers in Quetta. However the incidence of HIV is very low in this setup.

Key words: Seroprevalence, HBsAg, HCV, HIV, Drug abusers.

INTRODUCTION

Drug addicts represent a group for high risk of acquiring parentally transmitted infections and are very frequently infected with HBV, HCV and HIV. Studies have shown that there is a significant difference in the prevalence of HIV, HBV, and HCV among drug abusers and non intravenous drug users.[1]

An injecting drug user (IDU) infected with HIV may also be infected with HBV and HCV because of the common high risk behavior and similar route of transmission of these agents. Parental route is the major mode of transmission of these infections and drug injectors have the highest prevalence of HCV and HBV [2]. Non-injecting drug users (NIDU) are also at higher risk of contracting HCV and HBV than non drug users [3]. In particular, individuals who use cocaine intranasally may be especially at risk for contracting these infections through the blood

contaminated straws. There is evidence on the prevalence of the hepatitis C virus (HCV) in non-injecting drug users who sniff, smoke or snort drugs such as heroin, cocaine, crack or methamphetamine. HCV prevalence in this population is much higher than in a non-drug using population. [4]. These HBV and HCV positive drug users are usually unaware of their chronic infection with the virus for many years and may continue to spread the virus because they lack the knowledge that these diseases can be spread through injection paraphernalia [1]. Drug abuse and addiction have been inextricably linked with HIV/AIDS since the beginning of the epidemic. Due to common modes of transmission, a large proportion of injection drug users infected with HCV are also infected with hepatitis B virus and/or HIV. While intravenous drug use is well known in this regard, less recognized is the role that drug abuse plays more generally in the spread of HIV by increasing the likelihood of high risk

sex with infected partners. [5]. Active preventive programmes focusing on educational campaigns, sex education, among youth should be undertaken.[1]A multidimensional public health program must address not only issues related to unsafe sex, but also the problems of drug abuse, homelessness, and other lifestyle factors that contribute to risk behaviors.[6]

This study was carried out to find the frequency of HBV, HCV and HIV infection amongst the intravenous drug users in our set up.

MATERIAL AND METHODS

The study population comprised of a known population of drug abusers residing in Quetta, Balochistan recruited by an NGO Nai Zindagi(this is a voluntary organization which deals with finding, registering and rehabilitating drug abusers). A cross sectional study was conducted over a period of 3 months. All the subjects were male and above 18 years of age and underwent counseling as well as the taking of consent for HBV, HCV and HIV testing. The participants were the first consecutive 300 drug abusers who consented to participate in the study and gave blood for testing after pretest counseling during the period. The blood sample (5mL) was collected in a clean dry test tube, coded and transferred to the laboratory at Microbiology Department, Combined Military Hospital Quetta. Serum was separated and stored at 2-8°C till further testing. Testing was completed in batches and data was processed confidentially. Serological tests were performed for antibody to HCV, HBV surface antigen, and antibody to HIV using commercially available kits and the manufacturer's instructions were strictly followed.

Anti-HCV antibodies and HBsAg were detected in the serum using 3rd Generation ELISA (Adaltis). The testing was done in duplicate and results were expressed as reactive based on signal to cut off ratio of greater than or equal to 3.8 as per Centres for Disease Control (CDC) criteria for anti-HCV and HBsAg testing. [7]. Anti-HIV antibodies were detected using ELISA (Genscreen) for screening and Western Blot (BioRad) for confirmation of the results which were interpreted as per the manufacturer's instructions.

RESULTS

Table 1 outlines the results of serological tests in all subjects. Among 300 intravenous drug users 1 (.33%) was anti HIV antibodies positive, 129 (43%) were HBsAg positive and 134 (44.7%) were anti HCV antibodies positive.

The results of serological tests in all subjects (n=300)

TEST	Number of positive cases
HIV positive(Anti HIV antibodies)	1(.33%)
HBsAg	129 (43%)
Anti HCV antibodies	134 (44.7%)

Table 1

DISCUSSION

Hepatitis C virus (HCV) and HBV are significant causes of morbidity and mortality in Pakistan, where studies of patients with chronic hepatitis and hepatocellular carcinoma, in Rawalpindi and Karachi, showed that between 20 and 30% had antibodies to HCV and that 70 to 80% had evidence of past HBV infection .The seroprevalence of HCV in Pakistan is unclear, and its epidemiology, particularly in women and children, has yet to be established, although a study that used a second-generation antibody assay reported a seroprevalence of 0.44% in a group of 226 apparently healthy children in Karachi.[8]In high risk groups like drug abusers, in particular intravenous drug users (IDUs) a survey conducted by NACP shows 0.5% seroprevalence of HIV and 91.8% seroprevalence of HCV in IDUs in Lahore and a seroprevalence of 23.3% of HIV and 88% of HCV in Karachi 2005 [9]. More reflective of international figures are prevalence's of HIV, 22.4%; HBV, 53.4%; HCV, 29.7% in sexual workers in Florida [6]. Seroprevalence of HBsAg, antibodies to HCV & HIV among injectable drug users in Thailand was 43.67%(31),73.33%(33) &41.38%(12) respectively[1].In the present study the frequency of HBV infection is 43% and HCV is 44.7% at Quetta which is less than that detected at Karachi and Lahore.

Drug users are a medically underserved and a difficult to reach population. Public health efforts need to find ways to increase drug users' access to HCV testing and medical care.

At Quetta which is less cosmopolitan and a more conservative society the incidence of HIV(0.33%) is less than that of Lahore and Karachi in the same population.

Although new infections among injection drug users in the United States have declined since 1989, both the incidence and prevalence of infection remain high. Studies have shown that infection is widespread in populations of experienced injectors, with rates in many areas of the United States exceeding 80%. Acquisition of hepatitis C infection is very rapid among new injectors following initiation of injection, with 50 to 80 % infected within 6 to 12 months.[10,11]

Risks for infection include needle sharing,

frequent daily injection, cocaine injection, and sharing needles with a long-term injector. Because of the efficiency of blood-to-blood transmission and the high prevalence of infection among injectors, anyone who has ever injected drugs, even if he or she may have experimented only once in the past, is at risk for infection. Due to common modes of transmission, a large proportion of injection drug users infected with HCV are also infected with HBV virus and/or HIV [12].

The prevalence of various infectious markers transmitted parentally will depend upon the initial disease burden of these markers in the community. Targeted interventions are required for such population groups located in HIV low prevalence states with high transmission of HIV due to risk behavior.

Intravenous drug users along with the above mentioned viral infections continue to be at increased risk of endocarditis, skin infections, and abscesses. Over the past several years, however, the proportion of AIDS cases attributable to injection drug use has declined, while AIDS cases attributable to heterosexual transmission have increased. From 2000 through 2004, the annual number of AIDS diagnoses attributable to heterosexual contact increased 18 percent among women and 24 percent among men. In 2003, MSM and those exposed through heterosexual contact together accounted for approximately 77 percent of cases, with MSM accounting for roughly 46 percent of the total cases. [13]

CONCLUSION

In this study we found a high incidence HBV and HCV positive cases in intravenous drug users of Quetta. However the incidence of HIV in this community is very low. Further research is needed to determine the extent of HIV infection and the occurrence of co-infections and other conditions among drug-abusing communities. Studies are also needed to characterize risk and protective factors so as to develop culturally sensitive prevention interventions. Research on HBV, HCV, and HIV disease progression and their relationship to the use and availability of treatment services will help us develop better strategies.

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