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Screening and Frequency of HBV, HCV and HIV in Intravenous and Non-Intravenous Drug Users in Different Areas of Pakistan

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Abstract: HCV, HBV and HIV contributing as a key public health problem around the globe particularly in evolving countries like Pakistan. Reuse of the injections, drug sharing and use of different kind of drugs are considered to be the major source for their transmission. The aim of the present study was to screen HCV, HBV and HIV. HBV, HCV and HIV positive serum samples of intravenous and non-intravenous drug users were subjected to analyze the LFTs, lipid profile and plasma glucose levels. Six months were taken to carry out this study and cross sectional study design was chosen to proceed for the study. The sample size was N= 150 randomly selected drug users. Intravenous and non-intravenous drug users both were selected for this study. Those individuals who don't use the prohibited drugs were omitted for this study. We observed that out of (N=150) 68.66% n=103 adductors were using intravenous while 31.34 n=47 were using non intravenous route for the drugs. HCV was more prevalent 53.39% n=55 among the intravenously drug inducers followed by 31.9% (n=15) non-intravenous drug adductors. HIV was almost negligible around 4.8% n=09 followed by 4.2% n=2among the intravenous and non-intravenous drug adductors respectively. Damage lessening platform are immediately required predominantly for confined intravenous drug users the sterilized injects/prickles over and done with syringes/needles altercation plans for those IVDU's who cannot cease the injecting drug abuse.

Key words: HCV · HBV · HIV · Intravenous users · Non-intravenous drug users

INTRODUCTION

Hepatitis is very thoughtful problem for the public health globally. HIV, HCV and HBV are the most common prolonged viral infections around the globe, which can be transmitted in number of ways like sexual practices, repeated blood transfusions and injecting prohibited drugs [1].

HCV can be spread over infected tools, such as stubbles or ladles that are frequently used to inhale powdered drugs, as well as heroin and methamphetamines. They also establish that HCV can be transmitted from the blood or mucus of infected needles or stubbles to the healthy sharing the same implement [2].

HBV is found to be responsible of developing almost 80% of Primary Hepatic Cancer. HIV and HCV co-infections are more Co-infection with HIV and HCV or HBV is highly predominant in intravenous-drug adductors (IDAs). HIV is found to be predominant in the China and Myanmar among the IDAs.[3]. WHO reasons that injecting drug adductors (IDAs) are a significant group that need to focus for the control and treatment of viral induced hepatic disorders? For such exertions to be correctly mounted and besieged, policy makers and health care specialists want precise and thorough data for the extent of the people at risk, as exist for HIV infection [4].

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Conferring to an approximation that HBV and HCV carrier are around Nine million and over14 million respectively. In diverse readings the incidence has been assessed as 3 to 10% for HbsAg and 2.2 to 14% for HCV antibody [5]. Abou Saleh, Muhammed T in Dec 2008 specified in his study that 16 studies of the incidence of HCV in drug adductors were acknowledged, reporting occurrence of 4.40% in non-injecting drug adductors (IDAs) and 81.60% in street conscripted IDAs. The prevalence rates for HCV infection were associated to number of risk factors like Injection sharing, elder age, duration of injecting drugs practices, use of cocaine and imprisonment. WHO reported in 2009 that about 33.40 million people around the globe living with AIDS, with the increases in the rate per year by 2.7 million. Current study piloted was grounded to find out the capacity and the occurrence of HCV, HIV and HBV infections on the high rate of HCV infection amongst prohibited or intravenous and non-intravenous drug adductors.

Aims and Objectives of the Study:

- Analysis of sera for the frequency of HBV, HCV and HIV amongst intravenous-drug adductors (IVDA's) and non- intravenous drug adductors (NIVDA's).
- The study of positive sera for liver function tests, lipid profile and plasma blood glucose level.

MATERIALS AND METHODS

Six months were taken to carry out this study and cross sectional study design was chosen to proceed for the study. The investigation of the randomly collected samples was carried out at the Department of Biochemistry and Biotechnology Pir Mehr Ali Shah, University of Arid Agriculture Rawalpindi. The sample size for the study was N=150 drug adductors. Blood Samples were randomly collected after obtaining informed consent not only from Government addiction treatment centers at different locations of Rawalpindi and Islamabad but also from those drug adductors which were found to be at their definite dwellings like dirty grounds, besides the bus stands. Socio demographic physiognomies, types of drugs used, duration and roots of administration, these information's gathered by conducting their proper interview. Intravenous and non-intravenous drug users both were selected for this study. Those individuals who don't use the prohibited drugs were omitted for this study. Aseptic conditions were applied to collect the blood samples.

HBV, HCV and HIV screening was done by using ICT Devices and residual sera were stored at -15°C for performing Biochemical and Virological Tests as HBV, HCV and HIV positive Sera were confirmed by using ELISA Kit method.

RESULTS

Fig. 4.1: Frequency of different drugs used.

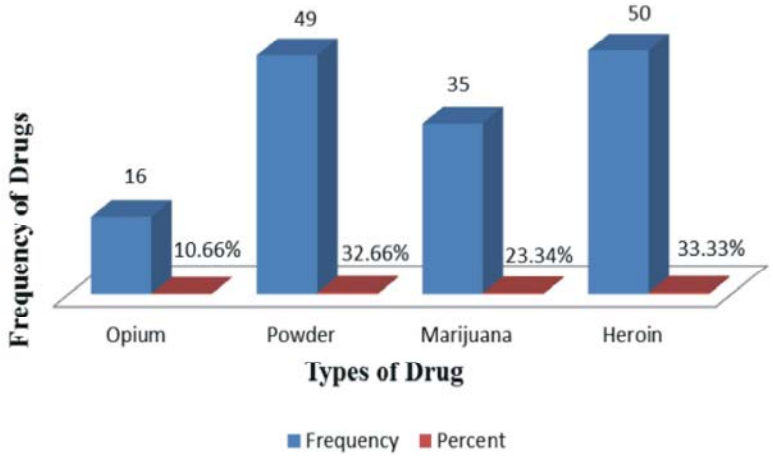

Fig. 1: Explains that Heroin was used more habitually by the drug adductors as it adds 33.33% n=50, followed by Powder, Marijuana and Opium in descending order 32.66% (n=49), 23.34% (n=35) and 10.66% (n=16) respectively.

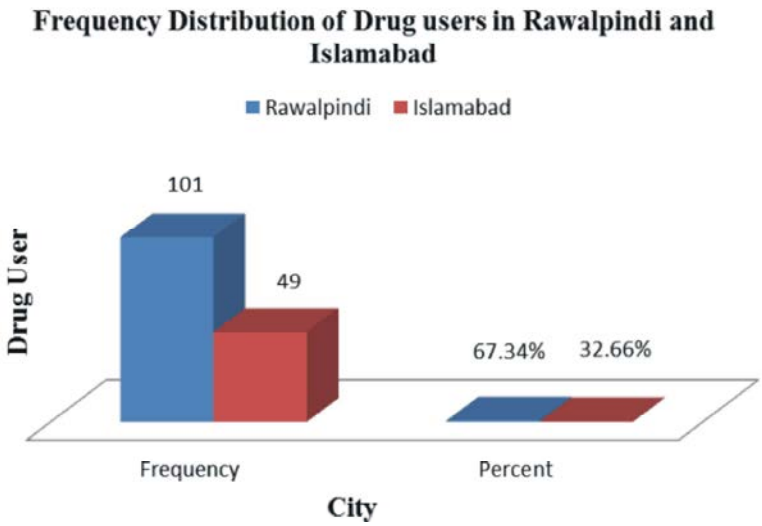

Fig. 2: Explains that Rawalpindi city have more drug users as compare to Islamabad as out of study population N=150 it accounts for 67.30% (n=101) and 32.70% (n=49) respectively

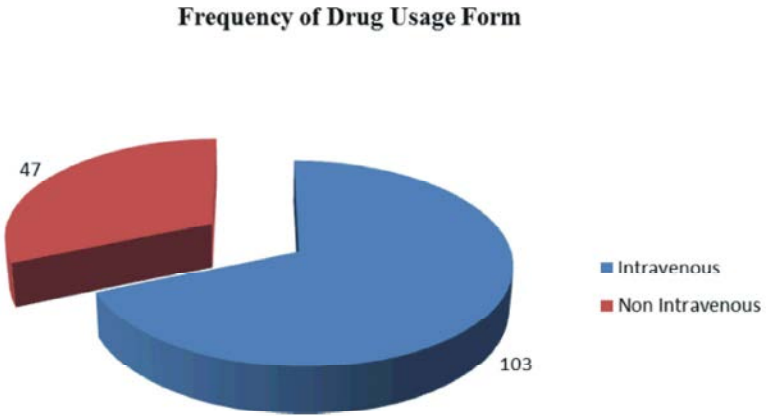

Fig. 3: Explains that commonly drug adductors use the Intravenous drug route followed by non-intravenous as out of Sample population N=150, it accounts for 68.70% (n=103) and 31.30% (n=47) respectively

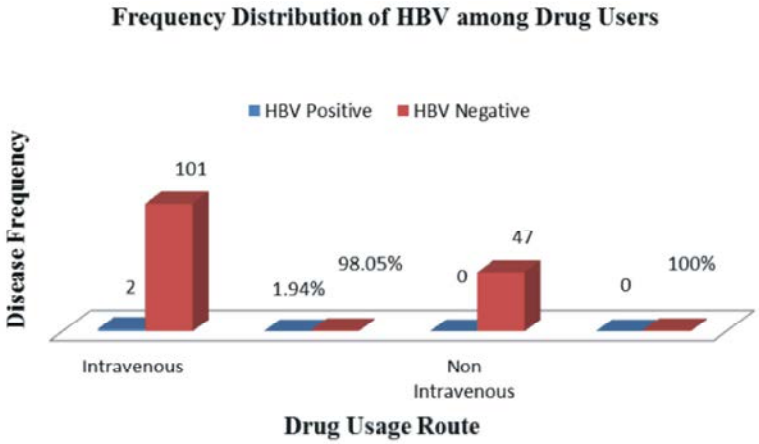

Fig. 4: Explain that HBV was not establish to be related amongst drug adductors as 98.00% (n =101) addicts were HBV -ve while only 2.0% (n=2) addicts were HBV +ve

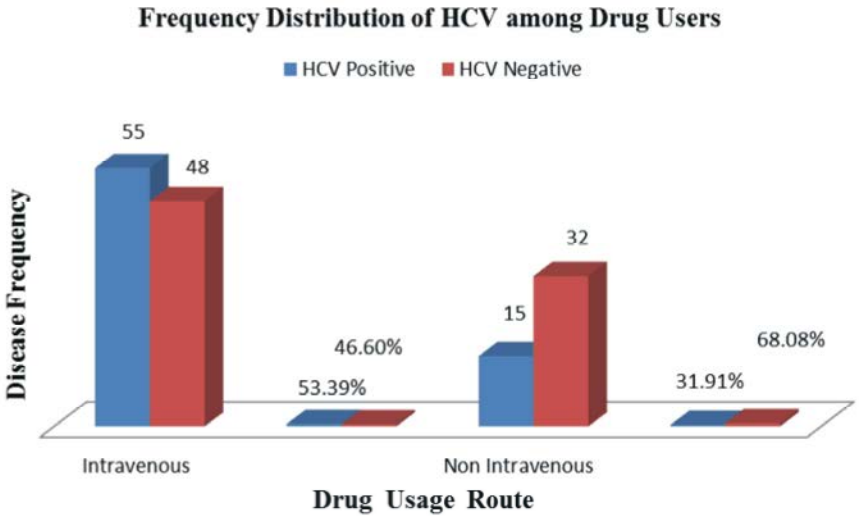

Fig. 5: Show that HCV infection was observed to be strappingly linked with use of intravenous drug as compared to non-intravenous route of drug administration as out of sample population it accounts for 53.4% (n=55) while only 32.0% (n=15), respectively

Chi Square Test

	Values	Degree of freedom	Asy Sig. (2sided)
Pearson Chi-Square	5.985	1	.012
Likelihood Ratio	6.099	1	.013
N of Valid Cases	150		

The Chi-Square test assessment express significance association between HCV infection and route of drug administration as alpha level is .05 and our p value is less than .05 so we will reject the null hypothesis.

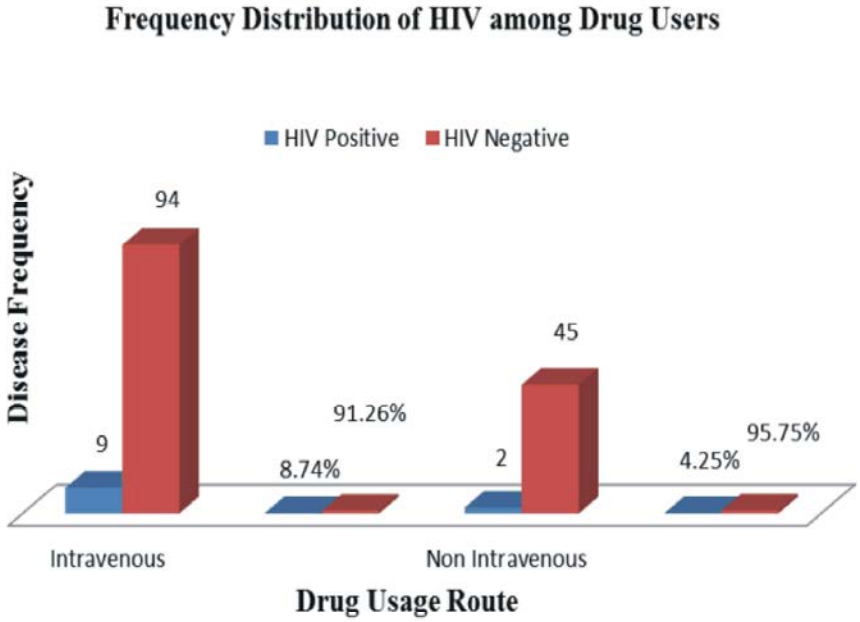

Fig. 6: Explain that HIV was positive in 8.70% (n=9) intravenous drug adductors followed by 4.3% (n=2) drug users were found to be HIV positive in non-intravenous drug adductors

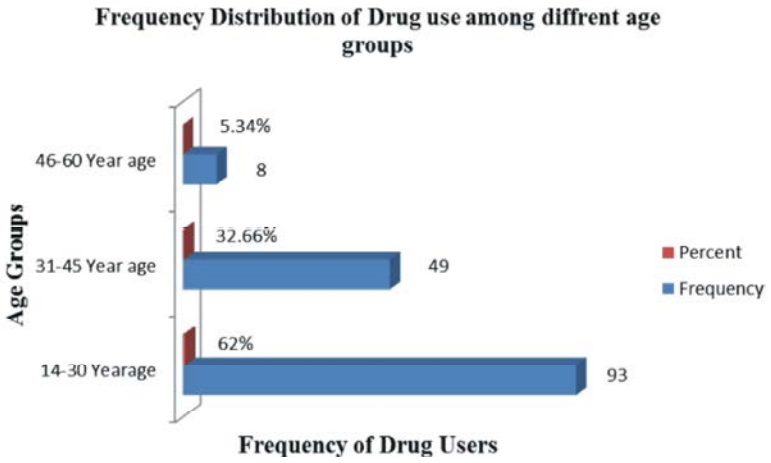

Fig. 7: Explain that age group 14 to 30 was more predominant among drug adductors followed by age group 31-45 and 46-60, as it contributes 62% (n=93), 32.70% (n=49), 5.30% (n=8) correspondingly

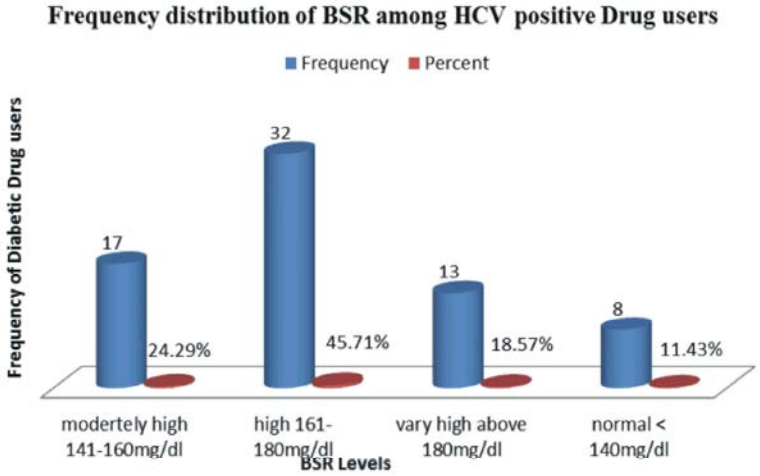

Fig. 8: Explain that BSR Level was estimated to be higher in 45.7% of the HCV positive drug adductors followed by discreetly high BSR level=141 to 160mg /dl

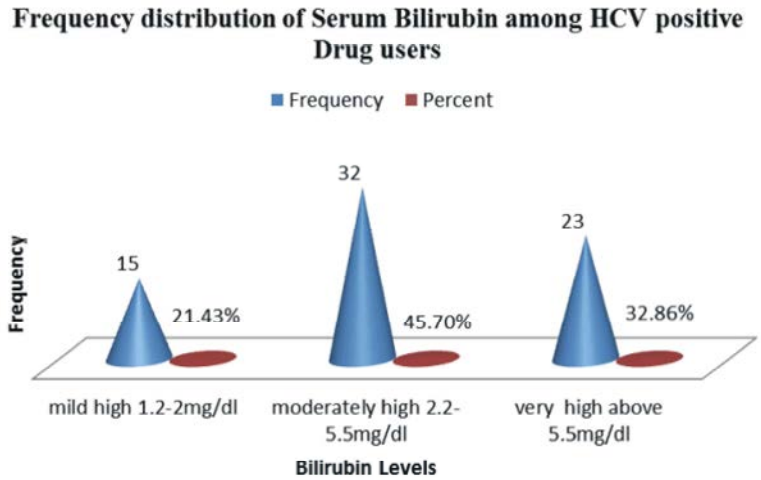

Fig. 9: Show that serum bilirubin level of range 2.2 to 5.5 was observed to be more predominant amongst HCV positive drug as it account for 45.70% (n=32)

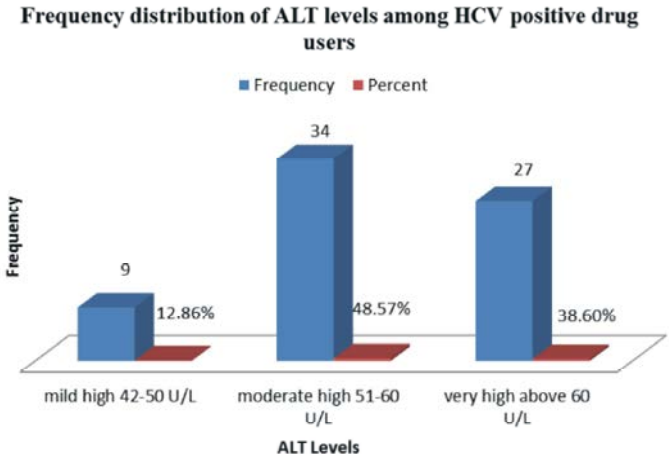

Fig. 10: Explain that out of HCV positive drug adductors (n=70), discreetly high, ALT level 51 to 60U/L was analyzed to be more common as it accounts for 48.60% (n=34)

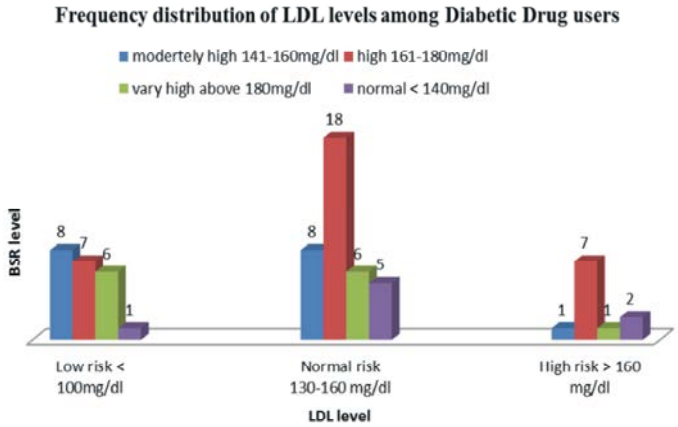

Fig. 11: Exemplify that Chances of developing heart problems in Diabetic Drug adductors was more as compare to non-diabetic. Serum LDL levels 130 to 160mg/dl was detected to be more recurrent in diabetic drug adductors with increased BSR levels account for 56.20% (n=18)

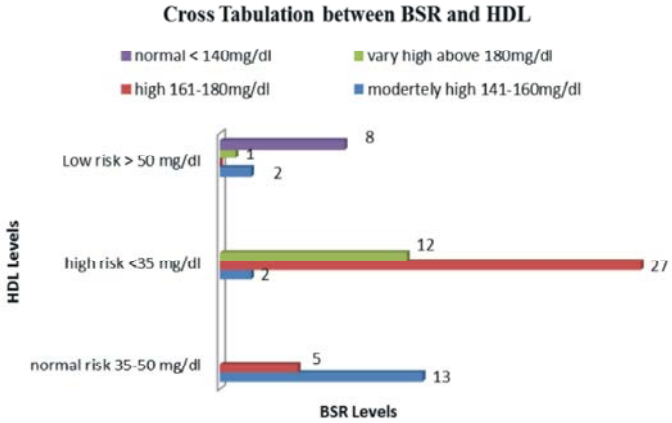

Fig. 12: Clearly indicates that high risk levels of HDL <35mg/dl was found to be more frequent in diabetic drug users with high BSR level 161-180mg/dl and it account for 84.4% (n==27) followed by very high BSR levels above 180mg/dl 92.3% (n=12). Depending upon these results it may be hypothesize that diabetic drug user are more prone to developed heart disease like atherosclerosis

Chi Square Test

	Values	Degree of freedom	Asymp. Sig. (2-sided)
Pearson Chi-Square	82.80	6	.001
Likelihood Ratio	74.6	6	.002
N of Valid Cases	70		

The Table 4.2: Relationship among BSR and HDL

Chi-Square test assessment express significance association between BSR and HDL as alpha level is .05 and our P value is less than .05 so we will reject the null hypothesis

DISCUSSION

Hepatitis is very thoughtful problem for the public health globally. HIV, HCV and HBV are the most common prolonged viral infections around the globe, which can be transmitted in number of ways like sexual practices, repeated blood transfusions and injecting prohibited drugs [1]. HCV can be spread over infected tools, such as stubbles or ladles that are frequently used to inhale powdered drugs, as well as heroin and methamphetamines. HCV can be transmitted from the blood or mucus of infected needles or stubbles to the healthy sharing the same implement particularly infected syringe, creates the biggest risk of viral transmission. The aim of the present study was to identify the occurrence of HCV, HBV and HIV in intravenous-drug and other drug adductors in Rawalpindi and Islamabad.

In the current study the incidence of HCV infection in the intravenous-drug adductor is more predominant as likened to non-intravenous drug adductors. The incidence of HCV infection among intravenous adductors users was reported 46.60% while the HCV infection is more strappingly related to intravenous drug adductors as if associated with HBV and HIV as HCV co-infection 53.40% (n=55) and P value <.01Research work conducted in 2006 Irene *et al.,* reported the 88% prevalence of HCV among intravenous drug adductors. These results might closer to our finding but not in lined with our results might be because of demographic difference as that study was conducted in Quetta and it nears to the Afghan Border which is the largest Opium Producer.

Our study results for HCV were also significant as another research conducted by Abu Saleh in [6] reported the HCV prevalence as 81.8%.In the current research work HIV infection in intravenous and non-intravenous drug adductors were analyzed to be less common as linked to HCV induced infection in both drug adductors as it accounts for 12.0% of the total infection. Current study is nearly in line with the study conducted by A. Altaf in [7] and reported the prevalence of HIV as 25.0% and in Sukkur It was around 19.0%. Current work showing high ALT levels among the HCV positive Intravenous Drug Adductors. This demonstrates sturdy link P >.04 as moderately high Serum ALT levels were analyzed in 48.70% of the cases. These results are in lined with the study results conducted by Richards [8].

CONCLUSION

Assumed the high incidence of three key blood born infectious ailments in this study and conferring to the collective number of intravenous-drug adductors in twin cities of Rawalpindi and Islamabad. Programs should be emphasis promising drug adductors to halt the use of prohibited drugs, provided that essential education to give them correct message about blood born infection and their mode of discrimination founding more detoxification and after care centers with new services and opioid agonist preservation management and providing the sterile syringes through syringes/needles exchange programs for those IVDA's who do not cease the use of injecting drug.

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Competing Interests: The authors declare no competing interests.

REFERENCES

1. Koziel, M.J. and M.G. Peters, 2007.'Viral hepatitis in HIV infection', 356: 1445-1454.
2. Murphy, E.L., S.M. Bryzman, S.A. Glynn, D.I. Ameti, R.A. Thomson and AE, 2000. 'Risk factors for hepatitis C virus infection in United States blood donors', 31: 756-762.
3. Zhou, Y.H., F.L. Liu, Z.H.L. Duo, H. Li, Y. Sun and Y.T. Zheng, 2011. 'Comparison of HIV- HBV-, HCV- and Co-Infection Prevalence between Chinese and Burmese Intravenous Drug Users of the China-Myanmar Border Region', 6(1): 16349.
4. Lavanchy, D., 2004. The global burden of hepatitis C.', 29(1): 74-81.

5. Qureshi, M., A.S. Mohammed and S. Malik, 2007. 'Seroprevalence of HBsAg, HCV and HIV antibodies in Healthy Individuals in Makkah Region', KSA., 23: 12-16.
6. Abou-Saleh and T. Mohammed, 2008. Prevalence and Incidence of Hepatitis C in Drug Users: A Review, 7(4): 190-198.
7. Arshad, Altaf and Naeem Saleem, 2009. High prevalence of HIV infection among injection drug users (IDUs) in Hyderabad and Sukkur, Pakistan, Canada-Pakistan HIV/AIDS Surveillance Project, National/Provincial AIDS Control Programme. Karachi, Pakistan).
8. Richard, H., 2007. 'Hepatitis viruses' 'University of Southern California, Department of Pathology and Microbiology', Retrieved, pp: 03-13.s
9. Cantilena, C., C.M. Raden, J. Gibble, J. Melpolder, A.O. Shakil, L. Viladomiu, L. Cheung, A. Di Bisceglie, J. Hoofnagle, J.W. Shih, R. Kaslow, R. Ness and H.J. Alter, 1996. 'Routes of infection, viremia and liver disease in blood donors found to have hepatitis C virus infection', 334: 1691-1696.
10. Irene Kuo, Salman ul-Hasan, NoyaGalai, David L. Thomas, Tariq Zafar, Mohammad A. Ahmed and Steffanie A. Strathdee, 2006. High HCV seroprevalence and HIV drug use risk behaviors among injection drug users in Pakistan, Harm Reduction Journal, 3: 26.
11. Kimber, P.N., J.M. Hickman, S. Hutchinson, T. Rhodes and D. Goldberg, 2010. 'Evidence for the effectiveness of sterile injecting equipment provision in preventing hepatitis C and human immunodeficiency virus transmission among injecting drug users', 105(5): 844-859.
12. Kral, A.H., B.E. Molnar, R.E. Booth and J.K. Watters, 1997. 'Prevalence of sexual risk behaviour and substance use among runaway and homeless adolescents in San Francisco', pp: 108-109.
13 Wild, C.P. and A.J. Hall, 2000. 'Primary prevention of hepatocellular carcinoma in developing Countries', 462: 381-393.