

ORIGINAL ARTICLE

ANTI-RETROVIRAL DRUGS COMPLIANCE IN INTRAVENOUS AND NON INTRAVENOUS DRUG ABUSERS

Muhammad Yousuf Daud, Rizwan Aziz Qazi, Naila Bashir*

Department of General Medicine, Pakistan Institute of Medical Sciences (PIMS), *National AIDS Control Program, PIMS, Islamabad, Pakistan

Background: Intravenous drug abuse is often associated with poor adherence to anti-retroviral drugs in HIV/AIDS. Very few studies in Pakistan have determined implications of intravenous drug abuse on anti-retroviral drug compliance in HIV/AIDS patients. The objectives of the study were to assess and compare the adherence to anti-retroviral drugs in intravenous drug users (IDUs) and non-intravenous drug users (NIDUs) and to determine various factors influencing the adherence to anti-retroviral (ARV) drugs in HIV positive IDUs in HIV treatment centre Pakistan Institute of Medical Sciences (PIMS), Islamabad. **Methods:** This descriptive observational study was carried out at HIV/AIDS treatment and care centre PIMS, Islamabad. A total of 162 HIV positive male (81 IDU and 81 NIDU) were enrolled in this study. They were followed over a period of five years from 2008–2012. ARV drug compliance and anti-tuberculosis treatment (ATT) outcome in IDUs and NIDUs were assessed using standard outcome parameters. **Results:** Among IDUs Hepatitis C was positive in 63 (77.77%) cases and negative in 18 (22.22%) cases. In NIDUs hepatitis C was positive in 5 (6.17%) and negative in 76 (93.82%) ($p=0.000$). In IDUs Pulmonary tuberculosis was present in 61 (75.30%) patients and in NIDUs it was present in 52 (64.19%) ($p=0.171$). Regarding ATT outcome, amongst IDUs 41 (50.61%) lost to follow up, 16 (19.75%) were compliant to treatment and 4 (4.93%) were transferred out. In NIDUs, 2 (2.46%) patients were lost to follow-up, 38 (46.91%) remained compliant to treatment and 6 (7.40%) were transferred out ($p=0.000$). Regarding end status of ARVs, in IDUs, 48 (59.25%) were lost to follow-up, 1 (1.23%) was defaulter, 16 (19.75%) were compliant to treatment, 8 (9.87%) were transferred out and 8 (9.87%) expired. In NIDUs, 73 (90.12%) were compliant to treatment, 5 (6.17%) expired, 2 (2.46%) were lost to follow-up. **Conclusions:** Due to various socioeconomic and clinical factors, compliance to ARVs in IDUs is poorer as compared to NIDUs. The factors recognized are illiteracy, poor socioeconomic status, unemployment and various comorbidities (Hepatitis B, C and Tuberculosis) which are more prevalent in IDUs.

Keywords: HIV, Anti-retroviral drugs, Intravenous drug abusers, Non intravenous drug abusers

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INTRODUCTION

During the last three decades, HIV pandemic has entered our consciousness as incomprehensible calamity. HIV and AIDS has already taken a terrible human toll laying claim to millions of lives worldwide. While sub Saharan Africa remains the worst effected region in the world, there is increasing concern about emergence of HIV and AIDS in South Asia. Pakistan is the second largest country that stands only a few steps behind India and Nepal in terms of HIV epidemic. Despite many efforts, the HIV infection rate has increased significantly over the past few years and in fact the country has moved from low prevalence to concentrated epidemic with HIV prevalence of more than 5% among IDUs in 8 major cities of Pakistan.¹

Intravenous drug use is often associated with poor adherence to Anti-retroviral drugs (ARVs) in HIV/AIDS but very few studies in Pakistan have determined implications of intravenous drug abuse on ARV compliance in HIV/AIDS. Because of unique

nature of HIV pathogenesis, full clinical benefit of ARVs requires strict adherence. Poor ARV adherence may result not only in reduced treatment efficacy but in selection of drug resistant HIV strains. Development of viral mutations that confer medication resistance is especially concerning because it can leave HIV patients with few or no effective medication options and can lead to spread of drug resistant strains.^{2,3}

In intravenous drug abusers (IDUs), the typically unstable, chaotic life patterns, the powerful pull of addictive substances and common misperceptions about dangers, impact and benefits of ARVs, all contribute to decreased adherence.⁴

MATERIAL AND METHODS

This descriptive observational study was carried out at HIV/AIDS treatment and care centre PIMS, Islamabad. A total of 162 HIV positive males were enrolled in this study. Out of these 162 male HIV patients, 81 were IDU and 81 were non intravenous drug abusers (NIDU). All of them were registered

with HIV centre, PIMS, Islamabad. All of them were between 18–62 years old. They were followed over a period of five years from 2008 to 2012. They belonged to three provinces of Pakistan (Punjab, Khyber Pakhtunkhwa and Sindh) and Azad Jammu & Kashmir.

They were stratified according to their employment and income status and level of literacy. All of them were tested for HIV infection (Elisa antibody and Western Blot), HBV surface antigen and HCV antibody and CD4 counts to assess the hepatitis and HIV status. Chest x-ray, sputum and pleural fluid analysis were done to diagnose pulmonary tuberculosis. Blood CP and HbsAg testing of all participants were also performed. Anti-retroviral drug compliance and ATT outcome in IDUs and NIDUs were assessed using standard outcome parameters.

In terms of ARVs compliance, five major groups were identified and followed accordingly in both IDUs and NIDUs. These included:

- Lost to follow-up: Patients who didn't turn up for previous 6 months for ARVs.
- Defaulter: Patients who skipped ARVs for at least 2 months during treatment.
- Transfer Out: Patients who were transferred from one HIV centre to another.
- Compliant
- Expired

Using these standard outcome parameters, compliance of patients in both groups was assessed.

RESULTS

Out of total 162 HIV patients enrolled in our study, 81 were IDUs and 81 were NIDUs. Out of 81 IDUs, 32 (39.5%) were illiterate and only 2 (2.46%) had education of matric or higher. Out of NIDUs 21 (25.92%) were illiterate and 30 (37.03%) had matric or higher education ($p=0.000$). In IDUs, 25 (30.86%) were employed and 56 (69.13%) were unemployed whereas amongst NIDUs 52 (64.19%) were employed and 29 (35.80%) were unemployed ($p=0.000$). With respect to income status, 76 (93.82%) IDUs belonged to lower socioeconomic class whereas 49 (60.49%) NIDUs belonged to lower economic class ($p=0.000$). Among IDUs Hepatitis-C was positive in 63 (77.77%) and negative in 18 (22.22%). In NIDUs hepatitis c was positive in 5 (6.17%) and negative in 76 (93.82%) ($p=0.000$). In IDUs, pulmonary tuberculosis was present in 61 (75.30%) patients and in NIDUs it was present in 52 (64.19%) ($p=0.171$). Regarding ATT outcome, amongst IDUs 41 (50.61%) were lost to follow up, 16 (19.75%) were compliant to treatment and 4 (4.93%) were transferred out. In NIDUs, 2 (2.46%) patients were lost to follow-up, 38 (46.91%) remained

compliant to treatment and 6 (7.40%) were transferred out. ($p=0.000$). Regarding end status of ARVs in IDUs, 48 (59.25%) were lost to follow-up, 1 (1.23%) was defaulter, 16 (19.75%) were compliant to treatment, 8 (9.87%) were transferred out and 8 (9.87%) expired. In NIDUs, 73 (90.12%) were compliant to treatment, 5 (6.17%) expired, 2 (2.46%) were lost to follow-up. The mean Haemoglobin in IDUs was 12.05 g/dl and in NIDUs it was 12.55 g/dl.

DISCUSSION

HIV was considered a rare disease in past decades in Pakistan. HIV prevalence in Pakistan nearly doubled from 11% in 2005 to 21% in 2008. The greatest source of a spread in the virus was use of drug injections and the UNAIDS says that an estimated one in five people who inject drugs in Pakistan are HIV-positive.¹

IDU practice is a major hazard for drug compliance in HIV/AIDS patients. Treatment of HIV in IDUs can be successful but HIV infected illicit drug abusers present special treatment challenges in our setup. These challenges are:

1. An array of complicating co morbid medical and mental health conditions.
2. Neglect on part of families and society faced by IDUs, who tend to abandon them.
3. This leads to increased isolation and desolation of IDUs, who already tend to live in needle sharing groups.
4. Limited access to HIV care and lack of awareness about HIV in IDUs.
5. Inadequate detoxification programs carried out by various NGOs (non-governmental organizations) in Pakistan ultimately lead to increased disease burden and non-adherence to ARVs.

Millions of people worldwide are IDUs and blood transfer through the sharing of drug taking equipment, particularly infected needles, is an extremely effective way of transmitting HIV. Around 30% of global HIV infections outside of sub-Saharan Africa are caused by the use of injecting drugs, and it accounts for an ever growing proportion of those living with the virus.⁵

The illegal nature of injection drug use can also create barriers to accessing adequate treatment and prevention services making IDUs more vulnerable to HIV and its effects. Without adequate access to HIV testing and prevention services, there is a high risk that HIV will also be transmitted to the sexual partners of people who inject drugs and the crossover of drug use with sex work further means that HIV is likely to be transmitted to other at risk populations and their partners.

During the past decade, largely as a result of potent anti-retroviral regimens, HIV has transformed

from rapidly progressive and universally fatal to a chronic and often stable disease. Although early anti-retroviral regimens involved large pill burdens and complex dosing schedules, improvements in these regimens have made HIV medication adherence similar to adherence in other asymptomatic diseases that require lifelong therapy, such as diabetes and hypertension.⁶ Active drug use has been associated with poor ARVs compliance.^{7-12.}

People who inject drugs can successfully undergo treatment and benefits from ARVs.¹³⁻¹⁶ There is also increasing evidence that ARVs may have a role in HIV prevention through lowering viral load and reducing HIV transmission.¹⁷⁻²² However IDUs have poorer level of access to ARVs and once they start taking ARVs they have poor compliance due to several aforementioned factors.

According to latest figures released by national AIDS control program of Pakistan, HIV prevalence among IDUs has jumped from 0.4 to 7.6%.²³ This increasing pattern of HIV in IDUs is due in part to various socio-demographic variables (literacy, poor economic status, unemployment) which influence the compliance to ARVs in IDUs. Also various comorbidities in these IDUs significantly affects the compliance to ARVs. Hepatitis B and C infections are very common among these IDUs. Pulmonary tuberculosis is another infection prevalent in HIV infected IDUs in our setup. Both HIV and TB infection are major public health problem worldwide, particularly in third world countries.^{24,25} TB is a common life threatening opportunistic infection in HIV patients²⁶ HIV is also a known risk factor for TB acquisition and puts the patients with latent infection at increased risk for progressing to active TB disease.^{27,28}

All these comorbidities effect the compliance to ARVs and in our study these comorbidities are more common in IDUs infected with HIV compared to NIDUs, thereby effecting the compliance to ARVs in IDUs having HIV.

In our study, most of IDUs were from Punjab province, had poor socioeconomic status, were illiterate, unemployed and had numerous comorbidities, i.e., Hepatitis-B and C and pulmonary tuberculosis. All these demographic, socioeconomic and clinical variables significantly effected the compliance to ARVs in IDUs. According to our study most of these IDUs came from various concentrated groups in Punjab's urban as well as rural areas. Most of them were homeless and abandoned by their families. Most of them were illiterate and unemployed and belonged to very poor socioeconomic class. They didn't have any awareness and knowledge about diseases transmitted through IV drug use and needle sharing. Most of them also had

hepatitis B, C and pulmonary tuberculosis. With all this background and multiple comorbidities, compliance becomes a major issue. Most of these IDUs lack the will and moral power. They are considered a neglected part of our society.

They also have multiple comorbidities and their pill burden and interaction further adds to noncompliance. There are multiple detoxification and rehabilitation programs which are carried out by various NGOs. These programs usually follow these patients for very limited time i.e., 14 days to one month. After that IDU loses follow-up and again goes back to that needle sharing society thereby becoming a major source of spread of resistant strains of HIV amongst IDUs. According to some reports, even the staff at these rehabilitation program offices provides drugs to IDUs.

It has been noted in our study that in order to assure compliance to ARVs and ATT amongst IDUs, we have to work on various fronts. Their social and moral support should be ensured. NGOs working in this field should work vigilantly and ensure complete rehabilitation and proper follow-up of IDUs before they are sent back to their homes.

CONCLUSIONS

Compliance to ARVs in IDUs is poorer as compared to NIDUs Compliance to ARV drugs in IDUs depends on multiple factors. Factors which contribute to poor drug compliance in IDUs are illiteracy, poor socioeconomic status and multiple comorbidities such as Hepatitis C and pulmonary tuberculosis. All these factors contribute to poor compliance in IDUs and rampant spread of resistant organisms amongst IDUs which contribute to majority of HIV cases in Pakistan. Ensuring adherence to ARVs in IDUs can significantly prevent the spread of HIV in Pakistani population.

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Address for Correspondence:

Dr. Muhammad Yousuf Daud, Department of General Medicine, Pakistan Institute of Medical Sciences (PIMS), Islamabad, Pakistan

Cell: +92-322-7717717

Email: yousuf489@hotmail.com