Review Article

The burning issue of human immunodeficiency virus infection/acquired immune deficiency syndrome in injection drug users: Global scene with a specific focus to India

Sujita Kumar Kar

Department of Psychiatry, King George's Medical University, Lucknow, Uttar Pradesh, India

ABSTRACT

Intravenous drug use (IDU), initially confined to developed countries, specifically the western countries is no more bound by boundaries. In last few decades, the prevalence has been increased several fold and is a matter of serious concern. IDUs indulge in high-risk activities like sharing of the needle and unprotected sexual activities, which make them more vulnerable to acquired human immunodeficiency virus (HIV) infection (acquired immune deficiency syndrome [AIDS]). They silently spread the infection in the community (other IDUs, spouses and sexual partners). There is an increasing trend of HIV infection/AIDS among intravenous drug abusers across the world including India being no exception. The article highlights the global epidemiological data, specific focus of India.

Key words: Human immunodeficiency virus infection, India, intravenous drug users

INTRODUCTION

Acquired immune deficiency syndrome (AIDS) is a retrovirus infection affecting the immune system of the individual making them more vulnerable for multi-systemic opportunistic infections. It has gained its pace in last few decades causing a global threat to the mankind. Initially, it was thought to be a sexually transmitted disease; subsequently research evidences supported the transmission of human immunodeficiency virus (HIV) infection through contact with infected body fluids. Other than sexual contact with an infected partner, an individual may come in contact with infected body fluids through blood transfusion, use of unsterilized or infected instruments, needle prick or sharing of the needle.

Address for correspondence:
Dr. Sujita Kumar Kar, Department of Psychiatry, King George's Medical University, Lucknow, Uttar Pradesh, India.
E-mail: skkar1981@yahoo.com

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EPIDEMIOLOGY OF HUMAN IMMUNODEFICIENCY VIRUS INFECTION/ACQUIRED IMMUNE DEFICIENCY SYNDROME

As per the international data, approximately 33 million people across the world have HIV infection; 20-30% of this population also has co-infection with hepatitis C virus.[1] Nearly 70% of world's population affected with HIV, reside in the sub-Saharan region.[2] In this region approximately 5% of the adult population are affected with HIV infection.[2] In the low and middle-income countries, approximately 1.5 million pregnant women were living with HIV by 2012 among which nearly 2/3rd were on antiretroviral therapy.[2] There is an epidemic of HIV infection in many asian countries among the high risk population like female sex workers and intravenous drug users (IDUs).[3]

HUMAN IMMUNODEFICIENCY VIRUS INFECTION/ACQUIRED IMMUNE DEFICIENCY SYNDROME IN INJECTION DRUG USERS

Intravenous drug use is a global health concern as the current focus is on the transmission of HIV infection through sharing

of syringes, indulgence of the IDUs in high-risk sexual behavior.[4] HIV infection/AIDS is a fatal consequence of IDU.[5] It is estimated that there are approximately 16 million IDUs globally out of which nearly 20% are infected with HIV, though there occurs gross variation in the prevalence of IDUs across countries and cultures.[4,6] Mathers *et al*. in their systemic review on HIV infection in IDUs found that IDUs attribute to 1 in every 10 of new HIV infections across the world.[7,8]

Ruan *et al*., in their 4 years, follow-up study found variation in the sero-conversion (conversion from sero-negative to sero-positive) for HIV across different ethnic population and gender.[9] There is high-risk of HIV infection in the sexual partners of IDUs.[10] In studies, it was found that when an IDU acquires HIV infection in a particular community, the infection spreads very rapidly and there occurs a rapid sero-conversion in that particular community.[11] There occurs a rapid spread of HIV infection from the IDUs by means of sharing of needles, indulgence in unprotected sexual activities with commercial sex workers as well as regular sex partners, which is responsible for the HIV epidemic.[3]

The health-related quality of life of IDUs is grossly compromised as found in the study by Surah *et al*.[12] Mathers *et al*., in their systemic review on the prevalence of HIV infection in IDUs, found that — maximum number of IDUs are found in countries like China, USA, Russia.[6] The prevalence of HIV infection in IDUs found to 37% in Russia, 16% in USA and 12% in China.[6]

Death in IDUs depends on the type of drug injected and the risk is found to be higher in male IDUs than female IDUs.[13-15]

INDIAN SCENE

India is a heavily populated country of South-East Asia. The prevalence of HIV infection/AIDS is quite high in this region. The 13th round of HIV sentinel surveillance has been conducted in India in the year 2012-2013 at 763 sites across 34 states and union territories.[16] The HIV prevalence in antenatal clinics in the country was found to be 0.35%.[17] Majority of the states of North-East — that is,: Nagaland (0.88%), Mizoram (0.68%) and Manipur (0.64%) lead the list with high prevalence of HIV infection among pregnant mothers.[16] Andhra Pradesh, Karnataka, Chhattisgarh, Gujarat, Maharashtra, Delhi and Punjab also found to have a prevalence above the national average in this group.[16] States, where the HIV prevalence is below the national average in pregnant mothers, are — Bihar (0.33%), Rajasthan (0.32%) and Odisha (0.31%).[16]

Among the adult population the prevalence of HIV infection is estimated to be higher in males (0.32%) than females (0.22%) with a national average of 0.27% (range being 0.22-0.33%) in the year 2011.[18] In India, the risk to develop HIV infection in females is not mostly due to their own risk behavior, rather it is due to their partner's risk behavior like — having sex with men or intravenous drug abuse.[19]

Manipur state (1.22%) is having highest prevalence of HIV infection in adults in the country, followed by Andhra Pradesh (0.75%), Mizoram (0.74%), Nagaland (0.73%) and Karnataka (0.52%) for the year 2011.[18] There was a steady decline the HIV prevalence in the adult population in India over the last decade.[18] It is estimated that 20.9 lakh people in India are living with HIV in 2011 out of which nearly 39% are women and 7% are children.[18] Andhra Pradesh, Tamil Nadu, Maharashtra and Karnataka together account for nearly half of the HIV burden of the country.[18]

The major mode of transmission of HIV infection in India is heterosexual mode.[20] Over decades, there is an increase in other modalities of transmission of HIV infection and needle sharing among IDUs is one of the reasons among these. HIV transmission through needle sharing among IDUs are common in the bordering states of India and Myanmar (i.e., Manipur, Nagaland and Mizoram).[20] However, it is increasing in other parts of the country in the recent years. Approximately 2% of the population of Nagaland and Manipur are IDUs as a result, the highest prevalence of HIV infection found in this region.[21] The high-risk activity related to IDU was very high in the late 1990s resulting in increased prevalence (80%) of HIV infection in IDUs, however the prevalence has been declined over last two decades due targeted intervention to the current level of <20% in Manipur and <2% in Nagaland.[22,23]

India is a major transit of opioid and many other drugs. There is increasing trend of IDU in India. The recent data says that nearly 177,000 IDUs present in India.[24] As per some studies, 10,600-22,300 IDUs are there in India.[7,25] The current prevalence of HIV infection among IDUs is 7.14% in the country.[24] Among these IDUs 1 in every 20, avail the facility of opioid substitution therapy (OST).[7,25]

Intravenous opioid use is a great concern in India not only due to the harmful consequences of the drug (opioid) itself but also due to the consequence of high-risk behavior associated with IDU which attribute to the increased prevalence of HIV infection/AIDS. Due to this very important issue, govern of India had addressed this issue in the 1999-2002 and 2006-2007 pilot project, followed by in the 3rd 5 years plan under aegis of National AIDS Control Organization (NACO).[8,26-28] The available data related to mortality in IDUs is mostly from Western countries.[5] There is a need to explore the prevalence, consequences and impact of IDU in developing countries like India on the basis of which a highly effective intervention can be carried out. Other than the government-run centers, nongovernmental organizations also play a vital role in harm reduction strategy

in IDUs and the results are comparable to the outcome at international level.[26]

In the North-East states of India, IDUs have a high prevalence of HIV infection and most of them are males.[29] High mortality in these high-risk population, led to increase in the widow population in this region, who are again vulnerable to indulge in high HIV risk behavior due to their compromised mental health.[29] Attempts have been made through participatory intervention to promote their mental health, prevent social discrimination and encourage engagement in recreational activities and rehabilitative program to prevent HIV infection.[29] As a part of the preventive strategy, community outreach activity had been initiated in Chennai (former Madras) in the late 90s and was proved to be highly effective in preventing the spread of HIV infection.[30] Currently, the NACO governed targeted intervention centers also emphasize on the outreach activities and involve the outreach workers as well as peer groups (previous IDUs, who successfully quitted IDU) in HIV prevention.[31] Jain *et al*., had studied the effectiveness of peer-led education in preventing HIV infection among IDUs and found that there was substantial decline in HIV prevalence in this high-risk population from 2009 to 2011.[31]

FUTURE PERSPECTIVES

Even though heterosexual mode is the most common mode of transmission of HIV infection in adult population, it has reached a platue due to the preventive measures and awareness campaign as a result of which, in adult population the prevalence has started following a declining trend in most southern states.[32-34] However, the prevalence of HIV infection/AIDS among the high-risk population (men having sex with men, IDUs, female sex workers) is persistently found to be high and even increasing.[32-34]

Human immunodeficiency virus infection/AIDS in IDUs is preventable. Existing evidences support the effectiveness of OST, needle and syringe exchange program and antiretroviral treatment in reducing the transmission of HIV infection/AIDS.[35-37] The future goals should be to identify the gap and fill it appropriate care services. As per the available international data, needle and syringe exchange program and OST is available in 80% and 65% countries respectively, worldwide.[4] However, the coverage of these services seems to be unsatisfactory and need to be taken seriously realizing the seriousness of HIV epidemic worldwide. There is a need for provision of adequate needle — syringes in more of a number of centers dealing with IDUs.[38] At the same time, there is also need of adequate number of drop in centers attached to the targeted intervention units (TIUs) working with IDUs to encourage and facilitate the safe injecting practice.

Prevention of HIV infection in IDUs seems to be a difficult task due to socio-political resistance to the harm reduction strategies (needle and syringe exchange program and OST), poor control over illegal distribution of drugs.[17] OST is effective in reducing the harm related to drug, high-risk behavior like indulgence in unprotected sexual activities as well as needle sharing.[7,8] Due to its proven efficacy, it is campaigned internationally as an effective harm reduction strategy in IDUs. Despite of all scientific evidences and campaigning, OST is able to cover <10% of IDUs worldwide and a still lower coverage in developing and underdeveloped countries, which draws the attention of government and other health agencies to promote and strengthen their focus on OST.[7,8] India and China, which accommodate a larger population of the world able to provide OST coverage to 3% of nation's IDUs and there is long way to traverse ahead in terms of health care provision of IDUs.[7,8] Tun *et al*. had studies about different recruitment strategies to enroll clients to HIV prevention services in Delhi.[39] Recruiting more clients to the HIV prevention services through direct campaigning, outreach activities of TIUs and peer-led activities will help in successful prevention of HIV infection in IDUs, so also in the community.

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