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FREQUENCY OF HIV/AIDS AND ITS MODE OF TRANSMISSION AT TERTIARY CARE UNIT

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ABSTRACT

Objectives: Human immune deficiency virus (HIV) is a retro virus which has two types HIV-1 and HIV-2. HIV attacks helper T-cells of immune system, which is a type of white blood cell. Helper T-cells also known as CD4 cells fight off infections. HIV makes copies in CD4 cells and destroys them. Human beings get this infection through contact with body secretions other patients having HIV. HIV prevalence and incidence is documented in Pakistan as per WHO and annually updated. The purpose of our study is to determine the frequency of HIV and modes of transmission among the patients visiting Jinnah Hospital Lahore. **Methods:** It was a cross sectional study conducted in Jinnah Hospital Lahore and data was taken from the patients who presented to and found HIV positive on rapids diagnostic tests screening with SD bioline, Alere detemine, and UniGold screening kits followed by confirmation of HIV viral load on quantitative PCR. Data was collected from 1st April 2019 to 30th June 2019. Patients were selected by consecutive sampling. **Results:** There were 190 patients who were tested for HIV in this period and 40 were found positive. There were 176 males and 13 females and 01 transgender. Risk factors were intravenous drug use (IDU) in 20 patients, sexual in 07, blood transfusion and contaminated needles in 02 and unknown in 11. **Conclusion:** HIV is male predominant disease. Incidence and prevalence is increasing gradually. Most common mode of transmission is IDU followed by unknown and sexual. A large number of patients had unknown source. This indicates need for stopping IDU, sharing needles and risky behaviors should be avoided and safe sex practices should be promoted. Furthermore, we need to look out of the box to find out other modes of transmission.

KEYWORDS: HIV, frequency, mode of transmission, IDU.

INTRODUCTION

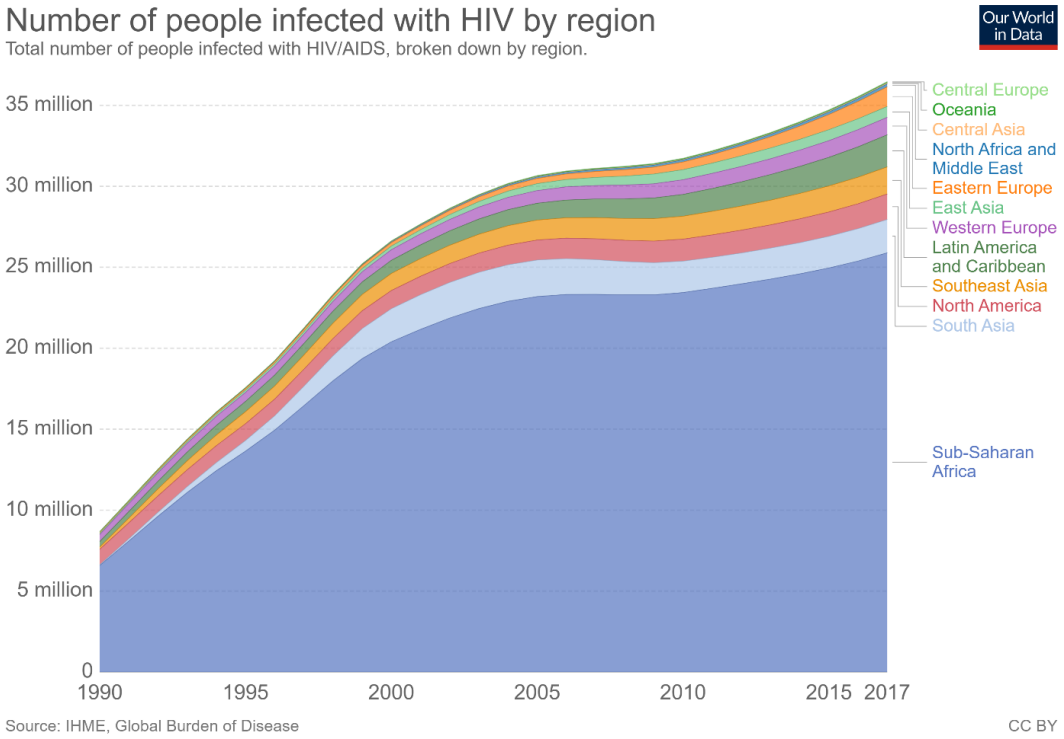
Human immune deficiency virus (HIV) is a retro virus which has two types HIV-1 and HIV-2. HIV attacks helper T-cells of immune system, which are a type of white blood cell. Helper T-cells also known as CD4 cells fight off infections. HIV makes copies in CD4 cells and destroy them. Human beings get this infection through contact with body secretions other patients having HIV.[1, 2] HIV destroys increasing number of CD4 cells and continue making more copies of itself, ultimately it breaks down one's immune system. Person living with HIV and not receiving treatment, will find it harder and harder to fight off infections and diseases. Acquired immune deficiency syndrome (AIDS) is a syndrome which is caused by HIV when human immune system is too weak because of activity of HIV that it develops certain opportunistic infections or cancers related to HIV. There are 20 opportunistic infections and HIV-related cancers, presence of anyone of those defines AIDS. AIDS if left untreated can culminate into death, in about three years.[3]

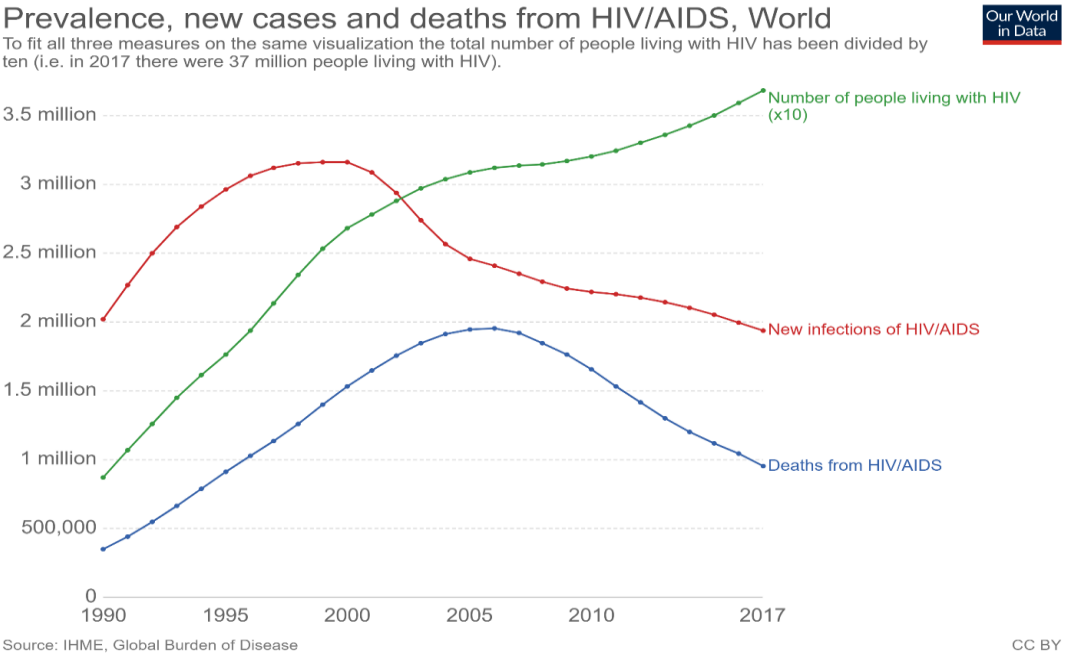
HIV can be transmitted through contact with body fluids, secretions and blood. This contact can be unprotected sexual intercourse (vaginal or anal), and oral sex with an HIV positive person; transfusion of contaminated blood; and the sharing of contaminated needles, syringes, surgical and other sharp instruments. It may also be transmitted vertically between a mother and her infant during pregnancy, childbirth and breastfeeding.[4]

In HIV disease, primary infection is manifested as fever, headache, sore throat, myalgia, arthralgia, rash and lymphadenopathy 4-12 weeks after getting HIV infection. Acute infection is often ignored and can become latent, presents after a variable period of time as chronic infection can present with constitutional symptoms and aids related illnesses. It can take 10-15 years for HIV to convert into AIDs. HIV is diagnosed with fourth generation Elisa testing which is immunoblot assay tests for HIV-1 and HIV-2 antibodies and HIV-1 P24 antigen which test for established HIV-1, HIV-2 and

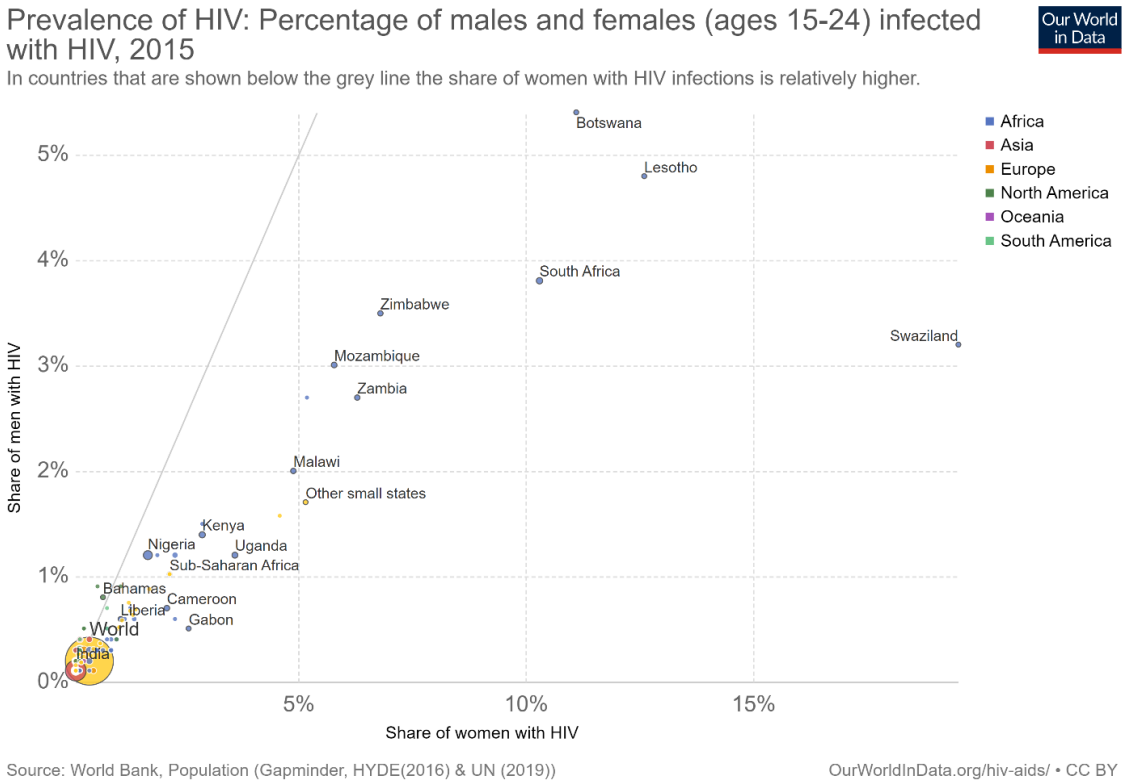
acute HIV infection. Then it is tested to found out specific type by west blot and confirmed with PCR.[5, 6]

According to global health observatory data since the beginning of the epidemic, an estimated 0.8% [0.7-0.9%] of adults aged 15–49 years worldwide are living with HIV, although the burden of the epidemic continues to vary considerably between countries and regions. Sub-Saharan Africa remains most severely affected, with nearly 1 in every 25 adults (4.2%) living with HIV and accounting for nearly two-thirds of the people living with HIV worldwide. Eastern and southern Africa prevalence is 19.4 million and incidence is 790000 whereas in central Asia and pacific its 5.1 million and 270000 respectively. HIV demographics with incidence, prevalence and deaths from HIV all over the world.





According to new data collected in 2017, there were 37 million people living with HIV. Data also confirms that number of male affected with HIV is more than that of female affected with HIV as shown in diagram 03.



INCIDENCE AND PREVALENCE IN PAKISTAN

By 2010, total number of registered patients reached to 6000 and this figure was on the rise gradually. A large proportion (78%) of the patients were IVD abusers.[7] Globally, there is a positive trend emerging as new infections among adults are estimated to have declined by 11% and 16% for the general population between 2010 and 2016.[8] The number of annual HIV infections in the United States fell 18 percent between 2008 and 2014.[9] In Pakistan, there is an Increasing trend of incidence and prevalence is highest, at present, 0.160million. In Pakistan, there were 15000 new HIV cases registered in 2014 and 19000 in 2016, 22000 in 2018. According to a study, sexual transmission was the commonest mode of transmission of HIV in Pakistan. Male are affected more than female due to risky sexual behaviors.[10] In 2010, another study found out IDU was most prevalent risk factor 78% among HIV patients. In Pakistan, overall IDU prevalence is 110000 and 21 percent has HIV. It is estimated that there are 11.7 million people who inject drugs worldwide, and 14% of them are thought to be living with HIV. In Pakistan, HIV prevalence among different high risk groups, according to WHO, are given below in table 1.

Incidence is increasing day by day due to better diagnostic facilities and nationwide for campaign and communication service and wide spread set up of aids center at district level and NGO facilities, we decide to run a research program to quantify prevalence and incidence of HIV/AIDS.

Categories of patients	**Number of patients**
people living with HIV	160 000 [140 000 - 180 000]
Adult Males with HIV	110 000 [97 000 - 120 000]
Adult females with HIV	48 000 [42 000 - 54 000]
Children living with HIV (0-15)	5500 [4700 - 6300]
People having access to ART	16 000
Overall incidence	0.1 [0.1 - 0.2]
Adults and children newly infected with HIV	22 000 [20 000 - 24 000]
Prevalence in young adults	0.1
Adult and child deaths due to AIDS	6400 [5200 - 7600]
Prevalence in young women 15-49 years	<0.1
Prevalence in young men 15-49 years	<0.1

MATERIALS AND METHODS

It was a cross sectional study conducted in Jinnah Hospital Lahore and data was taken retrospectively for patients who presented to and found HIV positive on rapids diagnostic tests screening with SD bioline, Alere detemine, and UniGold screening kits followed by confirmation of HIV viral load on quantitative PCR. Data was collected from 1st April 2019 to 30th June 2019. Patients were selected by consecutive sampling. All patients above 12 year and 65 years or below and those patients who have HIV positive on screening method or PCR were included in study. All patients less than 12 years age and more than 65 years of age and those who have undetectable HIV PCR Quantitative were excluded from study.

RESULTS

There were 190 patients who were tested for HIV in this period and 60 were found positive. There were 176 males and 13 females and 01 transgender.

Table 1.1

No. of patients	Positives	Negatives
190	40	150

Average incidence was 7.01 per month. Data pertaining to demographic characteristics and risk factors is summarized in Table 1.1 Modes of transmission are shown in table 1.2 given below:

Table 1.2

Mode of transmission	No. of patients
IDU	20(50%)
Sexual	07(11.67%)
Blood transfusion	01 (1.67%)
Contaminated needles	01 (1.67%)
Unknown	11(35%)

DISCUSSION

According to UNAIDS, HIV prevalence in the world is 0.26% and 0.43% among young adults (15-49years). 36.7million people globally were living with HIV in 2016. Incidence rate, in 2016, was 1.8 million. In Pakistan, HIV prevalence is 0.160 million which is 0.1% of population. In 2016, 19000 new cases we registered and incidence rate was 0.18%.[13] In this study, we tested only high risk group and among high risk population our incidence was 7.01. Male to female ratio was 13.5:1 as compared to national ratio 2.27:1. Previous studies looking into demographic characteristics in past has seen similar male predominance[3] transgender prevalence was 0.98 which is not mentioned previously which can't be generalized because of small samples size in our study population. Incidence rate was 7.01 which is more than national one. Incidence rate is slightly increasing in our unit because we have more diagnostic and therapeutic resources and more patients already taking medicine from other centers are switching to their own nearest center. Secondly, it's increasing screening and diagnostic facilities and tendency to screen by practitioners that is surfacing more cases. According to our study, the modes of transmission, in the decreasing order of frequency, were IDU, unknown sources, unsafe sexual practices, frequently contaminated needles and blood transfusion. Similar risk factors had been identified in previous studies in the past.[7] Currently, in Pakistan there are 160000 people who are HIV and IDU abusers. Whereas, our study found out 50% people had been IDU which is lower than national incidence rate. Similar study in past has shown IDU and sexual practices a risk factor but on a lower frequency in Karachi.[14] Whereas, a large new group of unknown source is identified as well which need further research to identify other possible sources so that this disease could be prevented in future generations.

CONCLUSION

There is an increase in incidence of HIV/AIDS. Underlying cause of this increased incidence rate could be multiple. Possible causes could be increased infection rate, increased awareness among masses and increased diagnostic facilities and free medication provision. The modes of transmission, in the decreasing order of frequency, were IDU, unsafe sexual practices and unknown sources, frequently contaminated needles and blood transfusion. There is dire need of further research regarding unknown sources so that can be identified and rectified. As in Pakistan there is common practice to use injectable without compelling indications in GP practices and quack practices so that can be probable source and probably few persons might have never told us truth regarding source as its stigma due to cultural values. People need more encouragement as well as not to confide the sources for the sake of welfare of rest of community.

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