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Original Research Article

A trend analysis of people living with human immunodeficiency virus attending an anti-retroviral therapy centre in urban Bangalore

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ABSTRACT

Background: HIV infection in India is a major public health problem. The anti-retroviral therapy (ART) centre is the backbone of the national acquired immune deficiency syndrome (AIDS) control program (NACO). To assess the trend of new people living with human immunodeficiency virus (PLHIV) registered at an ART centre in Bangalore and their treatment status.
Methods: All the PLHIV registered at an ART centre from 1st January, 2009 to 31st December, 2018 were included in the study. PLHIV registered but not initiated on treatment, were excluded.
Results: Out of 4428 PLHIV registered at an ART centre, 2964 were initiated on treatment. The youngest PLHIV registered was 6 years, oldest was 79 years and the decadal median age was 38 years. Majority (41.4%) were in the age group of 31 to 40 years. Predominant gender was male. A declining trend of new PLHIV, LFU/stopped/missed cases over the past decade was observed. The 1658 are alive, 402 died, 305 cases either missed, stopped or lost to follow up, 32 cases were opted out of the treatment and 567 cases were transferred out.
Conclusions: A decline in number of new PLHIV, LFU, missed and stopped over the decade was observed.

Keywords: HIV, Trend, PLHIV, ART centre, NACO

INTRODUCTION

HIV infection in India is a major public health problem with no State free from the virus. HIV/AIDS continues to show itself to be one of India's most complex epidemics-a challenges that goes beyond public health, raising fundamental issues of human rights and threatening development achievements in many areas. Poor compliance of ART affects the progress towards achieving the national AIDS control organization (NACO) treatment targets, that aim to treat 90% of HIV diagnosed patients and achieve viral suppression for 90% of those on treatment.[1]

Since the beginning of the HIV epidemic, 75 million people have been infected and about 32 million people have died of HIV. Globally, 37.9 million [32.7-44.0 million] people were living with HIV at the end of 2018.[2] The HIV and AIDS were first reported in India in 1986. Since then, the ministry of health and family welfare (MoH and FW), government of India, has led the HIV/AIDS response, inclusive of advocacy, policy, strategic guidance, funding, and service provision for HIV prevention, treatment and care for both, people at risk of or living with HIV. National adult (15-49 years) HIV prevalence in India is estimated at 0.22% (0.16-0.30%) in 2017. Among males it was 0.25% (0.18-0.34) and among females at 0.19% (0.14-0.25). The adult HIV prevalence at national level has continued its steady decline from an estimated peak of 0.38% in 2001-03 through 0.34% in 2007, 0.28% in 2012 and 0.26% in 2015 to 0.22% in 2017.[3] These eight states: Maharashtra, Andhra Pradesh, Karnataka, Telangana, West-Bengal,

Tamil Nadu, Uttar Pradesh and Bihar together account for almost three fourth (75%) of total estimated PLHIV.[4]

Decrease in the number of newly infected cases along with increased availability of ART have contributed to a major decline in HIV mortality levels. As fewer people die from AIDS-related causes, the number of PLHIV is likely to continue to grow.

The treatment of HIV is available for free by the government of India through the establishment of ART centres. Majority of these ART centres are in government sector and very few in the private sector. Over time, these centres have been strengthened to provide health care, counselling, testing and support to all the HIV patients registered. Bangalore is metropolitan city and attracts people from far and wide. To cater to the retroviral positive subjects in the city, currently there are 8 ART centres, of which two are in the private sector.

With this background, the current study was conducted with the objective to assess the trend of PLHIV registered at an ART centre in Bangalore and to describe the treatment status of PLHIV registered at an ART centre in Bangalore.

METHODS

A Descriptive study was conducted among PLHIV registered in an ART Center, Bangalore according to feasibility of an investigator. All the cases registered at the ART centre from 1st January, 2009 to 31st December, 2018 were included in the study. PLHIV registered for treatment and not initiated on treatment, were excluded. A total of 4428 cases were registered, 2964 cases were initiated on treatment. Information about socio demographic characteristics, current status of the patient, opportunistic infections and baseline CD4+ lymphocyte (CD4) count (cells/µl) was obtained for each patient during the study period. The treatment status of PLHIV registered were classified as new, on ART, stop, miss, lost to follow up (LFU), transfer in (TI) transfer out (TO) and dead in the accordance with the WHO case definitions.[5]

Discontinuation refers to LFU, missed and/or stopping medication while remaining in care.[6]

Health education on importance of adherence to treatment, managing and reporting of co-morbid conditions was given to PLHIV. The study was undertaken after approval from Karnataka state AIDS prevention and control societies (KSAPS) as well as the KIMS institutional ethics committee. The anonymity and confidentiality of the cases was ensured at all the times.

Statistical analysis

The data were entered in MS excel and analysed in R studio and R commander statistical package (Version 1.2.5033). All data are presented as proportions, percentages, means and standard deviation.

RESULTS

Out of 4428 cases registered at the ART clinic, 2964 cases were initiated on treatment. The youngest registered was 6 years, oldest case was 79 years and the decadal median age was 38 years. Majority of cases (41.4%) were in the age group of 31 to 40 years and males were found to be at a higher number (54.6%). Most common route of transmission was heterosexual route (94.8%) followed by male sex with male (MSM) (1.3%).

A declining trend of newly registered PLHIV was observed, there was a drastic drop between 2009-2011, subsequently from 2012 onwards, the cases have more or less plateaued with fewer number of cases registered each year. Death of PLHIV has also shown a descending trend over decade. A total of 402 deaths were reported among study subjects and the median age was 38. Majority 134 (33.4%) were in the age group of 31 to 40 years followed by 116 (28.8%) in the age group of 41 to 50 years. Most deaths (135, 33.4%) were reported in the year 2009 year and least deaths 2018 (2, 0.5%) as depicted in Figure 1.

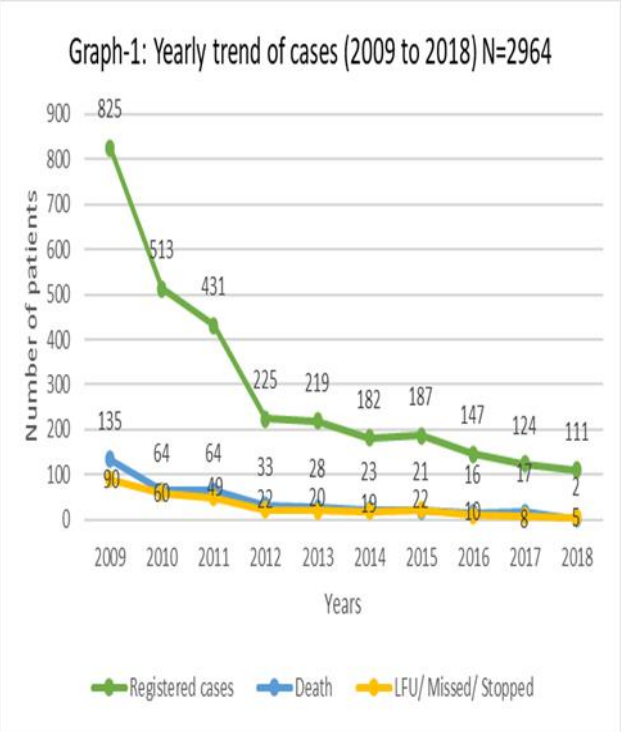

Figure 1: Yearly trend of cases (2009 to 2018), (n=2964).

The PLHIV who were LFU, missed, stopped after initiation of treatment was 10.9% in 2009 with an increase in the years 2010 and 2011 (11.7% and 11.3%) with a gradual dip in the next 2 years. An increase was again observed in the years 2013, 2014 and 2015 and followed by decline as shown in Figure 2.

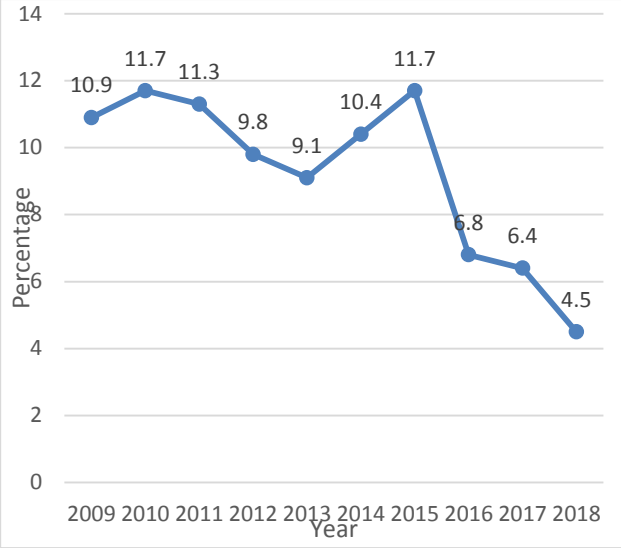

Figure 2: Discontinuation of ART (2009-2018).

Out of 2964 PLHIV initiated on treatment, 1658 are alive, 402 died, 305 either missed, stopped or LFU, 32 opted out of the treatment and 567 were transferred out.

The baseline CD4 counts was below 200 cells/cumm among 1465 (49.4%) PLHIV and the median CD4 count was 203 at the time of diagnosis. During the study period, 263 (8.9%) had tuberculosis co-infection, among them 173 had baseline CD4 counts less than 200 cells/cumm, 121 had extrapulmonary tuberculosis.

Figure 3 depicts the trend of HIV transmission among high-risk behaviour, it has been found that transmission among MSM, mother to child has declined over decade.

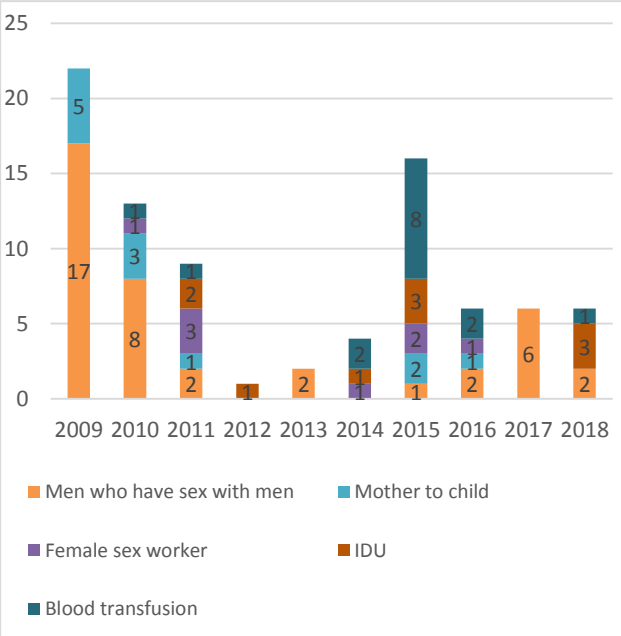

Figure 3: Trend of HIV transmission among high risk behavior groups.

Of 2964 PLHIV, 509 (17.2%) were initiated on treatment after 3 months of diagnosis. Maximum of 50 (26.7%) were initiated on treatment after 90 days in the year 2016, followed by 26 (23.4%) in 2018 and minimum 31 (7.2%) was observed in 2012.

DISCUSSION

The 2017 estimates indicated a slowdown in the rate of decline in the epidemic in recent years. Annual new HIV infections has declined by 27% in India from 2010 to 2017 against the national target of 75 per cent decline from 2010 to 2020. The annual AIDS-related deaths declined by 55% from 2010 to 2017.[7] This achievement maybe due to the well-functioning NACP, awareness about the disease aetiology, preventive measures. In the present study setting, a declining trend was observed and could have been due to establishment of a greater number of ART centres in city, state and country.

The global response to the HIV epidemic has been remarkable and has averted millions of premature deaths. Over the past decade the expansion of access to ART averted millions of deaths.[8] Similar findings were noted in the study where a declining trend on number of deaths in HIV patients was seen.

Unlike many studies where the percentage of females were found to be higher than the males, [9-13] in the present study it is observed that male cases were higher compared to females by 10% and could be due to better awareness and diminished fear of stigma.

Median baseline CD4 count was observed to be increasing over the years in the study indicating early diagnosis of the cases and referral to the ART centres for treatment. Higher CD4 counts are known to have better prognosis on retroviral subjects. The results of the study were similar to the results observed in the study by Gupta et al where an increasing trend in the baseline CD4 count was noticed from 2011 to 2017.[14] However, almost half of newly diagnosed cases had low CD4 count (<200) at the time of diagnosis similar to Krishna et al suggesting there is a strong need to intensify the efforts to fill the gaps in screening for early diagnosis to maximize the benefits of ART and to stop the spread of infection.[15]

Our findings have shown that RVD positive cases who were LFU, missed, stopped has varied by year and was found to be lowest for those who initiated treatment in the year 2018 (4.5%) similar to De La Mata et al.[16] A study done at an ART centre in south India reported the prevalence of HIV-TB coinfection to be 18.86%[17] compared to the present study (8.9%), of whom 65.7% had CD4 counts below 200 cells/cumm. Several other research studies have pointed to the fact that CD4 counts are lower among coinfected patients as compared to HIV infected alone and severe immune suppression is seen in those with CD4 count below 200 cells/cumm.[18,19]

The current study confirms the declining trend in new HIV infections and AIDS-related deaths similar to the NACO report 2017, corroborating India's success story in curbing the epidemic. However, there is no place for complacency as new HIV infections are rising in some locations across the country. Sustained commitment and much more vigorous action are needed to reach the ambitious prevention and treatment targets set for 2020 in view of ending AIDS by 2030.[20]

CONCLUSION

A decline in number of new PLHIV over the decade was observed. Deaths among registered PLHIV has shown a descending trend. Declivity of LFU, missed, stopped PLHIV has was seen. Down trend of mother to child transmission was observed.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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