



HIV Prevalence Trend Based On Antenatal Care Sentinel Surveillance Data (2012-2017) In Haryana

¹Dr. Swati Khatri, Junior Resident, Dept. of Microbiology, PT BD Sharma University of Health Sciences, Rohtak, Haryana (India) Pin 124001

²Dr. Ritu Aggarwal, Professor, Dept. of Microbiology, PT BD Sharma University of Health Sciences, Rohtak, Haryana (India) Pin 124001

³Dr. Kausalya Raghuraman, Senior Resident, Dept. of Microbiology, PT BD Sharma University of Health Sciences, Rohtak, Haryana (India) Pin 124001

⁴Dr. Aparna Yadav, Professor And Head, Dept. of Microbiology, PT BD Sharma University of Health Sciences, Rohtak, Haryana (India) Pin 124001

Corresponding Author: Dr. Ritu Aggarwal, Professor, Dept. of Microbiology, PT BD Sharma University of Health Sciences, Rohtak, Haryana (India) Pin 124001

Citation this Article: Dr Swati Khatri, Dr Ritu Aggarwal, Dr Kausalya Raghuraman, Dr Aparna Yadav, “ HIV Prevalence Trend Based On Antenatal Care Sentinel Surveillance Data (2012-2017) In Haryana”, IJMSIR- February - 2020, Vol – 5, Issue -1, P. No. 146 – 149.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Introduction

Human immunodeficiency virus (HIV) is an immense threat and a serious public health challenge.¹ Around 2.14 million people live with HIV/AIDS in India.² India has the third largest population of people living with HIV with India being superseded by S. Africa and Nigeria.¹ HIV/ AIDS remains a major problem in India after 1986 when it was first detected in a female sex worker in Chennai.³ Manipur has the highest incidence among the Indian states. Sexual mode of transmission was the most common mode of transmission in India, but in Manipur the most common mode is intravenous drug abuse.¹

The National AIDS control program was setup to prevent and control HIV in the year 1992.² Since then, the HIV burden among adults in India is estimated by direct extrapolation of the antenatal care sentinel

surveillance and surveillance of the high risk population.⁴ Avahan India AIDS initiative was formed in 2003 funded by Bill and Melina Gates with the objective to reduce HIV transmission in general population by focussing on the high risk group. Avahan operated in the 4 southern states- Andhra Pradesh, Karnataka, Tamil Nadu and Maharashtra and 2 north eastern states namely Manipur and Nagaland.⁵ Population based surveillance and extrapolation of the parent to child transmission surveillance are other methods to estimate the prevalence of HIV in the adult population. Identification of high risk areas and improving the knowledge and attitude would help in reducing prevalence of HIV. Hence, retrospective analysis of ANC sentinel surveillance data was done to observe the epidemiological trend of HIV prevalence in

Haryana based on the antenatal care sentinel surveillance data.

Methods

A retrospective analysis of prospectively maintained database of three consecutive ANC HIV Sentinel surveillance was done for the years 2012-2013, 2014-2015 and 2016-2017 at the testing site State Reference Laboratory (SRL), PGIMS Rohtak. ANC surveillance is conducted once in every two years for a period of 3 months. Number of sites included under SRL, PGIMS Rohtak in the respective years was 14, 15 and 17 for 2012-13, 2014-15 and 2016-17. The serum samples received from all the sentinel sites were tested as per NACO guidelines.⁶ Testing was done as per two test protocol in which first test is of high sensitivity and the second test is of high specificity. The second test is done only if the first test is positive. The test kits employed for HSS samples were supplied by Haryana State AIDS Control Society.

Statistical analysis: The prevalence of HIV in the above mentioned years were calculated and compared site-wise and with corresponding national values.

Results

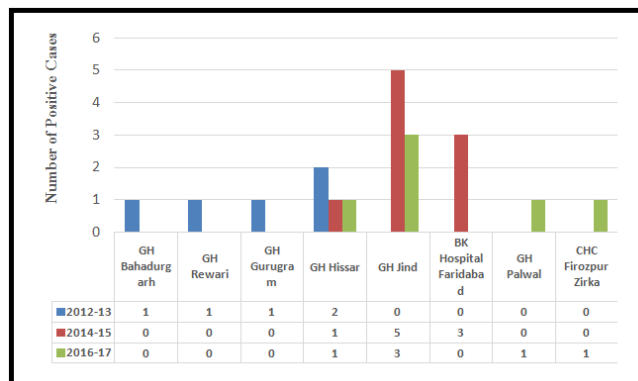
The number of ANC patients enrolled for HSS at sentinel sites whose samples were received at SRL testing centre, PGIMS Rohtak during the year 2012-2013, 2014-2015 and 2016-2017 were 3629, 4008 and 4803 respectively. The prevalence of HIV among these subjects in the year 2013 was 0.14%, for 2015 it was 0.22% and in the year 2017 it was 0.15%.

Table 1 shows the year-wise prevalence of HIV among ANC patients.

Year	Total of ANC patients enrolled	No. of ANC patients tested positive for HIV	Prevalence of HIV
2012-	3629	5	0.14%

2013			
2014-2015	4008	9	0.22%
2016-2017	4803	7	0.15%

Fig 1 and table 2: The demographic profile of the positive cases in various sentinel sites



Two new sentinel sites were added in 2016-2017 HSS round : GH Sonapat and PPTCT, PGIMS Rohtak. Out of these GH Sonapat reported one positive case in the year 2016-2017. From 2012-2017 HSS surveillance data GH Jind had 8 positive cases followed by 4 cases from GH Hissar and 3 cases from BH Hospital Faridabad. The other sentinel sites like GH Bahadurgarh , GH Rewari, GH Gurugram, GH palwal and CH Firozpur Zirka had once positive case each.

Discussion

In the present study among the various sites analysed the highest prevalence was noted for Jind district (0.67%) followed by Hisar (0.33%). The year wise analysis showed that the prevalence of HIV in the year 2013 was 0.14%, for 2015 it was 0.22% and in the year 2017 it was 0.15%.

Table 2: compares of the surveillance data of the present study with the Haryana and the National HIV prevalence rate.

	2013	2015	2017
Prevalence of HIV in ANC pt. in present study	0.14 %	0.22 %	0.15 %
Haryana overall HIV prevalence	0.13 %	0.24 %	0.18 %
National HIV in ANC pt. prevalence	0.35%	0.29 %	0.28 %
National overall HIV prevalence	0.28 %	0.26 %	0.22 %

The prevalence of HIV in Haryana is lower than that of the National data. In the year 2017, the ANC surveillance in Haryana had shown a lower rate of 0.15% compared to the Haryana overall HIV prevalence which is 0.18%. However on the contrary, at the national level the surveillance value is 0.28% and higher than the actual prevalence rate of 0.22%. Comparing studies with the present study on the contrary shows that the ANC surveillance depicts a higher HIV prevalence than the actual prevalence calculated.

Table 3: compares the HIV sentinel data in the present study with other studies.

Author	Place	Year	Sentinel Data	Overall HIV Prevalence
SAPHONN V. et al. ⁷	Cambodia	2001	1.88 %	1.24 %
DANDONA L. et al. ⁴	Guntur, A.P.	2005	4.38 %	1.79 %
MONTANA L.S. et al. ⁸	Sub-Saharan Africa	2008	9.26 %	6.66 %
PRESENT STUDY	Haryana, India	2017	0.15 %	0.18 %
		2015	0.22%	0.24%
		2013	0.14%	0.13%
NACO ⁹	India	2017	0.28 %	0.22 %

A study conducted by Dandona et al from Andhra Pradesh, India has shown a very high prevalence in the ANC sentinel surveillance against the overall HIV prevalence. ⁴However, in our present study the rates are comparable or slightly on lower side. This could probably be because Haryana is a low endemic area compared to Andhra Pradesh which is a high endemic area.

The studies from around the world also suggest that ANC surveillance shows a higher prevalence rate than the actual HIV prevalence.^{7,8} Parent to child transmission (PPTCT) data is replacing ANC surveillance in many countries. As the surveillance was unlinked and anonymous, the major disadvantage is that pregnant women are neither provided with the HIV result nor are they referred to HIV care to receive assistance. PPTCT on the other hand outgrows this disadvantage and also gives an accurate prevalence rate. However, PPTCT ⁱmajor disadvantage is selection bias. As 80% of the ANC patients in India are getting tested in testing centres, hence it could be used as an indicator.¹⁰

The major limitation of this study is that we were not able to study the variables related to prevalence of HIV. In a ANC surveillance study conducted by Thamattor and colleagues in 4 southern states the HIV prevalence ranged from 0.25% to 3.25%. On studying the different variables related to prevalence, they concluded that women aged >25 years, illiterate women and working as an agriculturist, driver or a factory worker had high positivity compared to the regular population.¹¹

Conclusion

Prevalence of HIV in Haryana is lower compared to the overall national prevalence. The HIV prevalence is showing fluctuating trend in Haryana. We conclude that the data based on ANC site HSS is a good marker for

estimating regional prevalence, but may tend to overestimate the overall HIV prevalence at national level as has been observed by many other studies in different countries. Increasing knowledge and awareness about HIV would help in reducing the rates in high prevalence regions.

Acknowledgement: We would like to acknowledge the Haryana State AIDS Control Society for regular supply of HIV test kits and staff of State reference lab at Microbiology Department, PGIMS, Rohtak for their sincere technical support.

Competing interests: Authors have declared that no competing interests exist.

References:

1. Sharma AL, Singh TR, Singh LS .Understanding of HIV/AIDS in the international border area, Manipur: Northeast India. *Epidemiology and Infection* 2019;147,e113:1–7. <https://doi.org/10.1017/S0950268818003564>
2. Joshi RK, Mehendale SM.Determinants of consistently high HIV prevalence in Indian Districts: A multi-level analysis. *PLoS ONE* 2019;14(5): e0216321. <https://doi.org/10.1371/journal.pone.0216321>
3. Simoes EA, Babu PG, John TJ, Nirmala S, Solomon S, Lakshminarayana CS. Evidence of HTLV-III infection in prostitutes in Tamil Nadu (India). *Indian J Med Res* 1987; **85**: 335–38.
4. Dandona L, Lakshmi V, Sudha T, Kumar GA, Dandona R. A population-based study of human immunodeficiency virus in south India reveals major differences from sentinel surveillance-based estimates. *BMC Med* 2006; **4**: 31.
5. Ng M, Gakidou E, Levin-Rector A, Khera A, Murray CJL, Dandona L. Assessment of population-level effect of Avahan, an HIV-prevention initiative in India. *The Lancet*. 378(9803):1643–52.
6. National AIDS Control Organisation. Operational Guidelines on HIV Sentinel Surveillance. New Delhi: Ministry of Health & Family Welfare, Government of India; 2008.
7. Saphonn V, Hor LB, Ly SP, Chhuon S, Saidel T, Detels R. How well do antenatal clinic (ANC) attendees represent the general population? A comparison of HIV prevalence from ANC sentinel surveillance sites with a population-based survey of women aged 15. *Int J Epidemiol* 2002;31:449-55
8. Montana LS, Mishra V, Hong R. Comparison of HIV prevalence estimates from antenatal care surveillance and population-based surveys in sub-Saharan Africa. *Sex Transm Infect* 2008; 84(Suppl. 1):i78–i84
9. National AIDS Control Organisation. India HIV Estimations 2017 Technical Report. New Delhi: Ministry of Health & Family Welfare, Government of India;2018.
10. Joshi R, Mehendale SM. Can we replace HIV sentinel surveillance platform with prevention of parent to child transmission(PPTCT) program data to assess HIV burden and trends in India? *Trans R Soc Trop Med Hyg* 2016; 110: 393-9.
11. Thamattoor U, Thomas T, Banandur P, S R, Duchesne T, Abdous B, et al. Multilevel analysis of the predictors of HIV prevalence among pregnant women enrolled in annual HIV sentinel surveillance in four states in southern India. *PLoS ONE* 2015; 10(7): e0131629. [doi:10.1371/journal.pone.0131629](https://doi.org/10.1371/journal.pone.0131629).