Original Research Article

Prevalence of HIV in Dead Bodies Posted for Autopsy: A Cross Sectional Study at a Tertiary Care Hospital

Rohan Thorat[1], G. S. Chavan[2], S. M. Jawle[3], P. S. Dode[4]

[1]Forensic Expert, District Hospital, Nandurbar, Maharahtra, [2]Professor, Department of Forensic Medicine, GGMC, Mumbai, Maharashtra, [3]Associate Professor, Department of Forensic Medicine, GGMC, Mumbai, Maharashtra, [4]Associate Professor, Department of Forensic Medicine, TMMC & RC, Moradabad, Uttar Pradesh.

How to cite this article: Rohan Thorat, G. S. Chavan, S. M. Jawle et. al. Prevalence of HIV in Dead Bodies Posted for Autopsy: A Cross Sectional Study at a Tertiary Care Hospital. Indian Journal of Forensic Medicine and Toxicology/Volume 18 No. 3, July - September 2024.

Abstract

Background: There are various reports regarding the suicide commission by HIV positive persons, but as such postmortem serological studies are yet not done to document the status in autopsy. Also it's vital to test a body before autopsy to avoid infection to the forensic experts and concerned persons in autopsy and allied work.

Objectives: The objective of the study was to estimate the prevalence of HIV infection, in unreported post-mortem cases in the autopsy room.

Material and Methods: The prospective study was done at the Department of Forensic Medicine in collaboration with the Department of Microbiology located in the Tertiary Care Government Hospital, Mumbai. Total of 216 cases were examined during a span of one year. Cases selected as per inclusion and exclusion criteria, tested for HIV after taking consent from guardians.

Results: Most common age group was found to be 31-40 years. Males were 72.22% while females were 27.78% of study. Out of total 6 were tested positive for HIV. Out of total 6 HIV cases 4 (80%) were males and 2 (20%) were females. Out of 6 cases 5 (83.3%) were below 50 yrs. 82.3% tested positive in first 24 hours of death. 3 (50%) died due to pulmonary tuberculosis, 2 (33.3%) due to meningitis and 1 (16.7%) due to lobar pneumonia. Conclusions: HIV among dead bodies presenting to autopsy is not uncommon.

Keywords: HIV, Autopsy, Medico-legal investigations

Introduction

The prevalence of HIV in Indian population is one of the major causes contributing to the death by secondary infection. The post-mortem serological investigations are a very simple tool to establish status of person which can be helpful in medico-

Corresponding Author: P. S. Dode, Associate Professor, Department of Forensic Medicine, TMMC & RC, Moradabad, Uttar Pradesh.

E-mail: dodepramod@gmail.com

Submission date: Feb 7, 2024 **Revision date:** Mar 13, 2024 **Published date: July 17, 2024**

legal investigations of death. Medico legal autopsy is mandatory in all sudden, unexpected, unexplained, unattended natural deaths or any unnatural death, but the prevailing conditions in mortuaries make it a potential health hazard for those working there[1-3]. Many studies have confirmed that, with the cessation of life, certain pathogenic bacteria are released, which if left unchecked may prove hazardous to the personnel[4].

In resource limited healthcare settings like India, the situation is worse of and the risk is further compounded by additional factors like high daily working load, traumatized state of many of the bodies, adverse working conditions and inconsistent availability of protective gears[5-6].

Medical history is not available in the cases which are unknown and unclaimed, brought dead to the mortuary. In most of the cases usually, the medical history of subject may be incomplete and may even be incorrect if fictitious history is given by relatives[7,8]. Practically it is very difficult to know the infectious status (HIV, HBV & HCV) of each and every deceased person brought for the postmortem before conducting the autopsy. With death, the translocation of microorganisms becomes easier in the absence of any live membrane or cellular barrier.[9,10]

Considering the present situation, where HIV, HBV & HCV infection are taking global epidemic. The present study was designed to estimate the prevalence of HIV infection, in unreported post-mortem cases in the autopsy room, and raising awareness in the autopsy surgeon regarding the infectivity of cadavers.

Material and Methods

However pre-mortem blood samples of cadaveric donors are usually not available especially in medico legal cases at the Forensic Medicine Department. With the implementation of EU Directives 2004/23/EC and 2006/17/EC (European Union 2004, 20006)[11-13] basic requirements of viral safety were defined in general. The prospective study was carried out at the Department of Forensic Medicine in collaboration with the Department of Microbiology located in the Tertiary Care Government Hospital, Mumbai. Total of 216 cases were examined during a span of one year.

Inclusion criteria: All hospitalized cases (death within 24 hours of admission) sent for post-mortem examination whose HIV status was not known, All unknown or unclaimed bodies sent for postmortem examination.

Exclusion criteria: Cases already diagnosed for HIV and cases were family members refused to give consent for HIV testing.

An informed consent either from the family members or relatives of the deceased or the investigating officer of unknown or unclaimed bodies was taken for all post-mortem samples.5 ml of blood sample was collected in three plain vaccutainers each with proper labeling to Microbiology department. The blood was allowed to clot at room temperature for 30 minutes then centrifuged at 3000 rpm for 10 minutes and the serum was separated using a micropipette into sterile vials. The aliquoted samples were processed immediately for HIV antibodies. Data was entered into Microsoft excel and analyzed using SPSS version 20 for p value. P value of <0.05 was taken as significant.

Results

Table 1: Age wise distribution of study sample

Age Group(yrs)	No of patients	Percentage
0-10 years	12	5.56
11-20 years	13	6.02
21-30 years	27	12.50
31-40 years	50	23.15
41-50 years	37	17.13
51-60 years	29	13.43
>60 years	48	22.22
Total	216	100
Mean ±SD	43.75±19.54 (1 month-85 years)	

In the present study of 216 samples 6 were tested positive for HIV. Regarding manner of death the present study did not find any case of suicide. Most common age group was found to be 31-40 years.

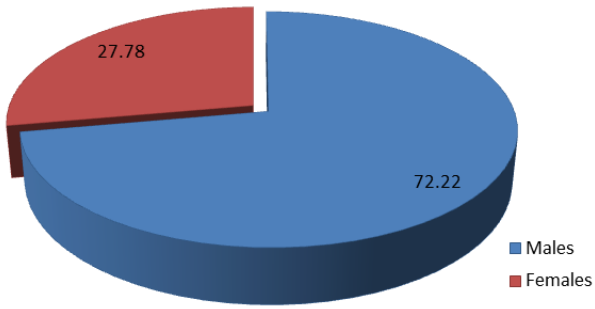

Fig 1: Gender wise distribution of study sample

Males were 72.22% while females were 27.78% of study sample.

Table 2: Age and gender wise distribution of positive cases

Gender	HIV
Male	4
Female	2
Age groups	
31-40 yrs	2
41-50 yrs	3
51-60 yrs	1

Out of total 6 HIV cases 4 (80%) were males and 2 (20%) were females. Out of 6 cases 5 (83.3%) were below 50 yrs.

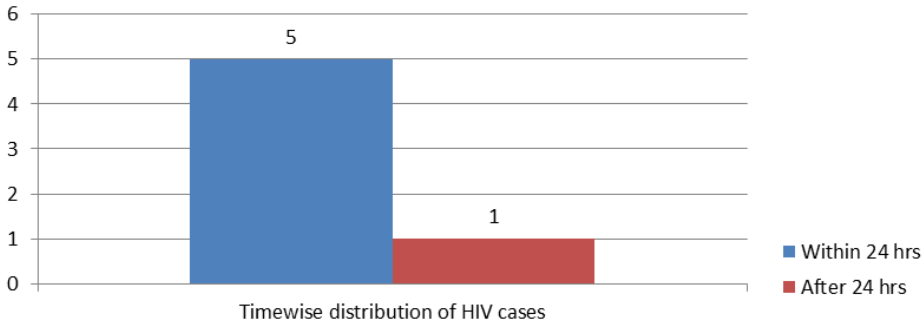

Fig 2: Time wise distribution of positive cases

82.3% tested positive in first 24 hours of death.

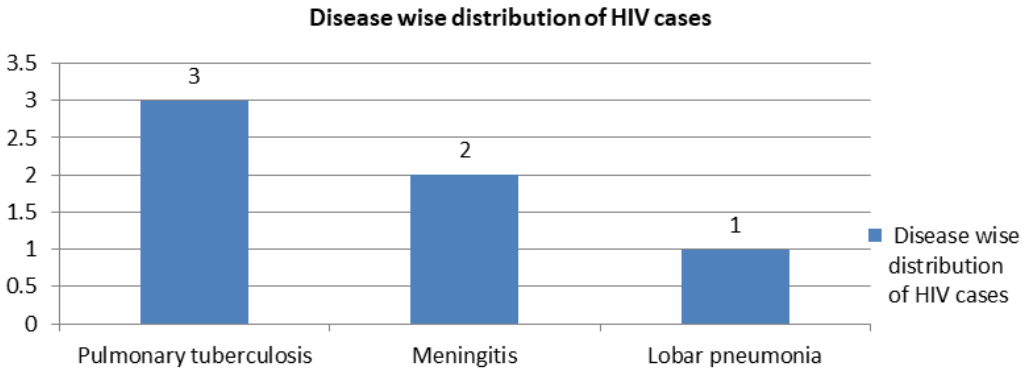

Fig 3: Disease wise distribution in HIV positive cases

Out of total 6 HIV cases 3 (50%) died due to pulmonary tuberculosis, 2 (33.3%) due to meningitis and 1 (16.7%) due to lobar pneumonia.

Discussion

Forensic handlers are at constant risk of acquiring infectious diseases like HIV, HBV & HCV, etc. Forensic handler's deals with situation like drug abuse, commercial sex workers and unidentified bodies which increases risk of infection transmission in forensic handlers. There are very little data available for the prevalence of HIV, HBV and HCV in autopsy bodies. The prevalence of HIV, HBV & HCV is one of the major contributing cause for death, but not directly leading to death. HIV causes immune suppression leading to secondary infections like pulmonary tuberculosis, tubercular meningitis, Lobar pneumonia, etc and death.

Out of total 216 cases, males were 72.22% while females were 27.78% of study sample. The present study of 216 samples 6 were tested for HIV. Most common age group was found to be 31-40 years. In the present study prevalence of HIV was found to be higher (2.78%) than various other studies that may signify high viral distribution in the geographical area. Study done by Eza D, Cerrillo G, Moore DAJ et al[14] (0.5%) had lower prevalence than our study. HIV positive results in 6 cases were showing positive in both groups of within 24 hours (5 out of 6) and after 24 hours (20%). The serological conditions are not directly leading to death. But the deaths in HIV positive persons are known due to secondary infections. In the present study all the tests done were screening test, no confirmatory test done, which was a limitation of this study.

Conclusion

HIV infection transmission is preventable by taking universal precaution in autopsy room. The post-mortem serological investigation of HIV may be useful to establish the manner of death when not known.

Ethical Clearance: Ethical approval was taken from Grant Government Medical College and Sri J. J. Group of Hospitals Mumbai, Maharashtra dated 17.1.17.

Conflict of Interest: Nil.

Source of funding: Nil.

References

1. UNAIDS (2013), *Global Report, UNAIDS Report on the Global AIDS Epidemic 2013.*
2. UNAIDS (2012), *Global Report, UNAIDS Report on the Global Epidemic,* 2012.
3. U.S. Global Health Policy (2012), *The Global HI V/AIDS Epidemic,* Fact Sheet, July 2012.
4. Yadav A., Pathak D., Alam F., Vyas N. Seroprevalence of HIV, HBV and HCV among the cadaver population - A Jaipur based study. *Medico Legal Update.* 2014;14(1):75–79. doi: 10.5958/j.0974-1283.14.1.018.
5. WHO (2008), *Priority Interventions, HI V/AiDS Prevention treatment and care in the health sector,* August 2008, WHO HIV/AIDS Department.
6. WHO, UNICEF and UNAIDS (2013), *Global Update on HIVTreatment*
7. *2013,* Results, Impact and Opportunities, WHO Report, June 2013.
8. UNAIDS, WHO (201 1), *Global HI V/AIDS Response-Epidemic update and health sector progress towards UniversalAccess— Progress Report 2011.*
9. WHO (2012), *HI V/AIDS, Fact sheet No. 360,* July 2012.
10. WHO (2004), *The World Health Report 2004,* Changing History.
11. Govt.of India (1999), *The National Response To HI V/AIDS in India, National AIDS Control Project Phase — II,* NACO, Ministry of Health and Family Welfare, New Delhi.
12. Govt. of India (2012), *Annual Report 2011-12, NACO,* Department of AIDS Control, Ministry of Health and Family Welfare, New Delhi.
13. Govt. of India *(2014),Annual Report 2013-14,* NACO, Department of AIDS Control, Ministry of Health and Family Welfare, New Delhi.
14. Eza D, Cerrillo G, Moore DAJ, *et al*. Postmortem findings and opportunistic infections in HIV-positive patients from a public hospital in Peru. *Pathol ResPract*2006;202(11):767-75.