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A HOSPITAL BASED SEROPOSITIVITY FOR HEPATITIS B SURFACE ANTIGEN AND ANTIBODIES TO HIV IN AND AROUND PUDUCHERRY – A RETROSPECTIVE STUDY

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ABSTRACT

Background: Studies across the country have reported a decline in the rate of HIV and HBsAg in the urban population and there is a lack of data on rate and pattern of theses infections in the rural part. To conduct community based seroprevalence studies, funds, facilities and man power are required. Clinical data collected by hospitals can help in estimating the disease burden due to these viruses in the community. In this backdrop, the present study was designed to estimate the seropositivity for these viruses in a hospital based population. **Materials and Methods:** Patients reporting to this hospital with various diagnoses, who were advised to undergo HIV and HBsAg testing, were included in this study. The HIV testing was done as per the NACO guidelines and HBsAg was confirmed with two different tests. All the data was analysed by Chi -square test. **Results:** A year wise seropositivity showed significant decline in HIV and HBsAg cases from this part of the country. The overall seropositivty for HIV and HBsAg was 1.25% and 2.0% respectively. Male predominance was observed with maximum positivity among the active age group. Maximum positivity rate of 76% and 74% for HBsAg and HIV was reported from Villupurum district. **Conclusion:** The present study shows a decline in the seropositivity for HIV and HBsAg in the rural population in and around Puducherry, which also indicates the level of awareness about these viruses in community. It also highlights the use of hospital based seropositivity studies as an option for community based studies.

KEY WORDS : HIV, HBsAg, Seropositivity, Hospital based population

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INTRODUCTION

Hepatitis B Virus (HBV) is prevalent all over the world, around two billion people are infected with this virus.[1] India has been placed in the intermediate zone (2%-7%) of prevalence of hepatitis B by WHO).[2]

Worldwide, more than a millon people, are dying annually because of acute HBV infection or due to its sequelae like chronic hepatitis, cirrhosis, and hepatocellular carcinoma.[3] an effective vaccine is available against HBV infection for over two decades, which has resulted in remarkable reduction in HBV infection in various parts of the world.

The HIV epidemic is one of the major public health problems of the 21st century worldwide. The seroprevalence data from all over the globe on HIV have come under extensive analysis in recent years. In India a decline has been observed in HIV cases in 2007.[4]

The assessment of disease burden is very important to formulate the control and preventive measures. The community-based surveillance studies are difficult to conduct because of ethical, social and economical hurdles. In India, we have strong private health care providers that serve for lagre number of patient population. [5] As a result, a large amount of clinical information is available in these centers which make them an important center for serological surveys. [6]

The present study was designed in our hospital for serological surveillance of HIV and HBsAg among the hospital based population.

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MATERIALS AND METHODS (260)

This study was carried out in the Department of Microbiology, Sri Manakula Vinayagar Medical College & Hospital, Puducherry, over a period of three years from Jan 2007- Dec 2010.

The patients reported at the various OPDs and/or admitted in various wards of this rural private hospital, who were advised to undergo HIV and HBsAg antibody testing as a part of preoperative screening, antenatal screening and clinically suspected of these infections were included in the study. In our hospital before HIV antibody testing a pretest counseling and informed written consent was obtained from all the patients.

The hospital regularly uses commercial rapid HIV test kits which were used for testing antibodies against HIV and all positive samples were then re-tested with ELISA 1 & 2 method as per NACO guidelines. All sera were screened for HBsAg by using commercially available rapid screening immunochromatography test kit according to the manufacturer's instructions (SD BIOLINE HBsAg Kit, India Ltd.). The kit has a sensitivity of 97.3% and specificity of 100%. Samples reactive with this test were rechecked by HBsAg Dipstick method (J. Mitra and Co. India). Patient's personal details like age, sex, address and clinical diagnosis were noted down. The collected data were represented in tabular form and analyzed by Chi -square test for test of significance and $P< 0.05$ was considered to be significant

Figure 1
Shows the location of Puducherry & surrounding region of Tamil Nadu

RESULTS

A total of 12741 and 11852 patients were screened for HIV and HBsAg respectively over a period of three years. The overall seropositivity for HIV and HBsAg reported was 1.25% and 2.0% respectively during three years. A year wise seropositivity for HIV and HBsAg is represented in Table 1. The maximum and minimum seropositivity for HIV observed was 1.63% and 1.02% in 2008 and 2010 respectively, The seropositivity rates of 2.61% and 1.45% was observed for HBsAg in 2008 and 2010 respectively as represented in Table 1. This present data shows a significant decline in HIV and HBsAg seropositive cases in this part of the country.

The seropositivity rate of HIV and HBsAg was higher in males than in females (Table 2). Most of the positive cases observed belonged to active working age group of 16-60 years. The maximum positivity rate of 76% for HBsAg and 74% for HIV was reported in Villupurum district of Tamil Nadu followed by Puducherry as shown in fig. 2

Table 1
Distribution of seropositivity of HIV and HBsAg among the hospital Based population

Year	HIV		HBsAg	
	Total cases	Total positive	Total cases	Total positive
2008	2740	43 (1.63%)	2142	56(2.61%)
2009	3923	49(1.38%)	3921	97(2.4%)
2010	6078	54(1.02%)	5789	84 (1.45%)
Total	12741	146(1.25%)	11852	237 (2.0%)

HIV x^2=8.26, df=2, p=0.016- significant
HBsAg x^2=7.57, df=2, p=0.022 – significant

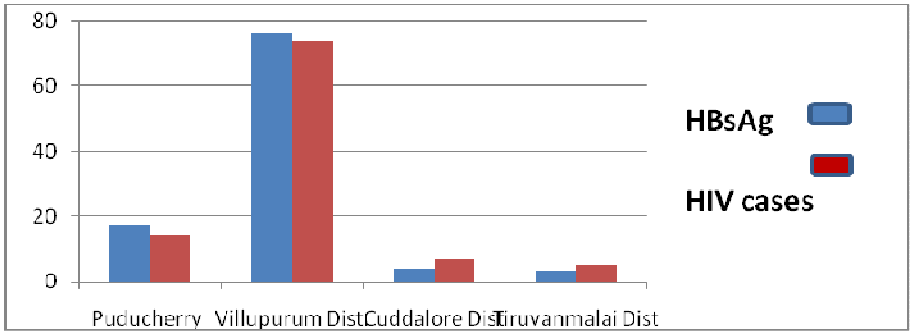
Table 2

Age and sex distribution of the hospital-based population positive forHepatitis B and HIV

Age	HIV(12741)			HBsAg(11852)		
	Male (positive)	Female (positive)	Total	Male (Positive)	Female (Positive)	Total
0-5	03	00	03	01	00	01
6-15	05	01	06	06	01	07
16-60	86	46	132	117	96	**213**
>61	04	01	05	14	02	16
Total	**98 (0.8%)**	**48(0.38%)**	**146**	**138(1.16%)**	**97(0.8%)**	**237**

Figure 2

Geographical distribution of HBsAg and HIV seropositive cases in and around Puducherry 100



DISCUSSION

The seropositivity rate for Hepatitis B surface antigen was 2.0% in our hospital-based population. There is a wide variation in HBsAg prevalence in our country [1] A similar seropositivity rate of 2.5% and 2.28% was documented from Kathmandu, Nepal[7], and Rawalpindi, Pakistan [8]. One of the studies in health care workers from Iran also showed the prevalence of HBsAg positivity as 2.9%.[9] The present finding also correlates with the prevalence rate reported by Lodha et al (2001) [10] and Sood et al, Jaipur, India [6] among the hospital based population

In the present study, a higher seropositivity rate of HBsAg was reported in males (1.16%) than females (0.8%). The study by Dutta et al [11] and Smita et al [6] also showed a male predominance.This may be because of a high immune response in females which helps to clear the HBV more rapidly and efficiently as compared to males [3] . The highest positivity rate was found in the age group 16-60 years.

The seropositivity rate for antibodies to HIV in our hospital population was 1.25%. A similar prevalence rate was also observed in Puducherry, NACO (2.26%) [12] Tamil Nadu [13] An emergency department based study in Andhra Pradesh also showed similar reactive rate for HIV (2.95%) [14]. The prevalence of HIV in the hospitalised patients at the University Hospital of BHU, Varanasi, has been reported as 0.37%. [15]

This is the first report from this region showing a significant reduction in infection with HIV and HBsAg among the hospital-based population. The present seropositivity data and observation is limited to the patient population

served by our centre and may not applicable to other centers.The reduction in infection rate in this region also highlights about the level of awareness about transmission of these viruses among the patient population.

In conclusion, the decrease in HBV and HIV prevalence is ultimately a multifactorial process. Health education imparted by NACO and other nongovernmental organizations about virus transmission and its prevention may be one of the major factors contributing to this. The introduction of various public awareness programmes like safe injection usage, proper sterilization of instruments, safe sexual practices and immunization of people at high risk also may have contributed to this reduction.

From the present study we also believe that hospital based seroprevalence studies can easily be used as second option when community based seroprevalence studies are difficult to conduct. The clinical information collected by private hospitals can effectively be used to study the seroprevalence of various diseases in the community, which certainly can be useful while formulating new policies to combat these diseases. It has also been noticed that marginal decline of these infections are not only reported form this part but also from various other parts of this country. However more efforts are needed to further bring down the rates. The present study provides a good reference to formulate the future strategies to further reduce the prevalence of HIV and HBsAg among the population of this area.

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