

Original Research Article

Seroprevalence of Hepatitis B, Hepatitis C and Human immunodeficiency virus among patients attending a tertiary care hospital, South India

Dr. Prudhivi Sumana*, Dr. Toleti Sunitha, Dr. Myneni Ramesh Babu

Professor, Dept. of Microbiology, NRI Medical College, Chinakakani, Mangalagiri Mandal, Guntur- 522503, Andhra-Pradesh, India

***Corresponding Author:**

Dr. Prudhivi Sumana

Email: prudhivi1167@gmail.com

Abstract: To estimate the prevalence of Human immunodeficiency virus [HIV], Hepatitis B virus [HBV] and Hepatitis C virus [HCV] among patients attending a tertiary care hospital, South India. A cross-sectional study was conducted between November 2015 and August 2016. A total of 71,703 samples [HIV-319, HBV-455, HCV- 157] were tested for anti-HIV, HB_s Ag and anti-HCV using standard serological tests. The prevalence of HIV was 319[1.44%], HBV 455 [1.78%] and HCV was 157[0.65%]. 'Z' test was used for statistical analysis. It was found that there was statistically significant difference between proportions of all the three. The proportion of HBV was more when compared with HIV [P=0.0019] and HCV [P=0.00001]. The proportion of HIV was more when compared with HCV [P=0.00001]. The study revealed high prevalence of HBV, intermediate prevalence of HIV and low prevalence of HCV. The study emphasises the need for early screening of all the three infections, and the results highlight the importance of relevant targeted interventions in these populations.

Keywords: HIV, HBV, HCV, Prevalence.

INTRODUCTION

Infection with Human immunodeficiency virus [HIV], Hepatitis B virus [HBV] and Hepatitis C virus [HCV] are still a major public health problem worldwide, particularly in developing countries. According to the WHO report, 34 million people are HIV positive worldwide [1]. Globally about 400 million and 170 million people are chronically infected with HBV and HCV respectively [3]. Approximately one million people die each year from hepatitis B and C virus infections [4]. The center for disease control and prevention [CDC], USA has reported HBV to be 10 and 100 times more infectious, compared to HCV and HIV respectively. HBV infected patients are more likely to develop hepatocellular carcinoma [HCC] compared to patients with HCV [5]. In a retrospective study conducted between 1992 and 2006 on 1,28,726 patients, the mortality rates due to HCV mono infection, HBV mono infection, HBV/HCV co-infection, HIV/HBV co-infection, HIV/HCV co-infection and HIV/HBV/HCV triple infection were 63.7%, 33%, 2.6%, 0.2%, 0.5% and < 0.1% respectively [7].

The present study was undertaken to determine the prevalence of HIV, HBV and HCV among patients attending a tertiary care hospital, South India.

METHODS

A cross sectional study was carried out in the department of Microbiology from November 2015 to August 2016 on the blood samples received from patients attending various departments of NRIGH. The samples were centrifused and sera were tested for anti-HIV, HB_s Ag and anti – HCV. Antibodies to HIV were screened by TRIDOT [J Mitra and Co]. Positive samples were further tested by Enzyme linked fluorescent assay ELFA [VIDAS, BIOMERIEUX] and chemiluminescence immunoassay [VITROS Eci Immunodiagnostic system]. HB_s Ag and antibodies to HCV were screened by Hepacard [J. Mitra and Co.,] Positive samples were further tested by chemiluminescence immunoassay technique [VITROS Eci system]. The tests were carried out according to the manufacturers instructions.

STATISTICAL ANALYSIS

'Z' test was used for statistical analysis.

RESULTS

Total number of samples received were 71,703 (HIV: 22,077 HBV: 25,545, HCV: 24,081). Antibodies to HIV were detected in 319, HB_s Ag in 455 and antibodies to HCV were detected in 157. The prevalence of HIV, HBV and HCV alone were 1.44%,

1.78% and 0.65%. Z test of difference between the two proportions was used.

Proportions of HIV, HBV and HCV:

HIV and HBV – P = 0.0019 (significant)

HIV and HCV – P = 0.00001 (significant)

HBV and HCV – P = 0.00001 (significant).

Among 71,703 cases, total number of positive cases were 931 [HIV+HBV+HCV].

The overall prevalence rates of HIV, HBV and HCV were found to be 0.44%, 0.634% and 0.22%. Overall prevalence of HBV was found to be more than the other two among these patients.

DISCUSSION

The prevalence rates of HIV, HBV and HCV infections vary according to the risk factors involved and the initial burden of infectious markers in the community, which may differ not only from country to country, but also in different regions of the same country [8]. This study revealed high prevalence of HBV, intermediate and low prevalence of HIV and HCV. In our study it was found that the prevalence of positive serology for HBV [1.78%] was greater than HIV [1.44%] and HCV [0.65%]. There was statistically significant difference between the proportions of HIV, HBV and HCV. The proportion of HBV was more when compared with HIV [P = 0.0019] and HCV [P = 0.00001]. Various studies have shown a prevalence rates of HIV [3.3%, 0.006%, 0.004%] HBs Ag [3.1%, 4.16%, 4.17%] and HCV [1.0%, 0.33%, 0.94%] [1,9] respectively.

The results also showed overall prevalence of HBV [0.634%] more than HIV or HCV [0.44% and 0.22%]. HIV, HBV and HCV share common routes of infection and hence may promote each other [10]. HBV and HCV have high degree of epidemiological similarity with respect to high risk groups and can cause acute and chronic liver disease, cirrhosis and hepatocellular carcinoma [11,5].

CONCLUSION

The present study emphasises the need to establish early diagnosis and help in initiating treatment which may prevent long term sequelae. Education, counseling, behavior modifications, routine screening, HBV vaccination and treatment are recommended for prevention of parenterally transmitted viral infections [12].

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