www.jmscr.igmpublication.org
Impact Factor (SJIF): 6.379
Index Copernicus Value: 79.54
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossrefDOI: https://dx.doi.org/10.18535/jmscr/v6i9.194

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Seroprevalence of Hepatitis B in replacement and voluntary blood donors at Tertiary care center, M.Y.H. Indore

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Abstract
Background: *Blood transfusion is a potentially significant route of transmission of infections to the recipient.*
Objective: *The aim of study is to determine the seroprevalence of Hepatitis B among replacement and voluntary donors in blood bank at tertiaty care center, Indore.*
Material and Method: *The present study included 75090 blood donors attending blood bank at tertiary care center, Indore. All the donor samples were screened for detection of surface Ag of hepatitis B. The seroprevalence of hepatitis B positive donors was calculated over a period of three years since January 2015 to December 2017.*
Result: *In this study, out of total 75090 blood donors, replacement donors were 6710 (8.93%) while voluntary donor were 68380 (91.06%). Total 854 cases (1.13%) were HbsAg positive in the duration of three year study period. Here out of 6710 replacement donors, 246 cases (3.66%) were HbsAg positive while out of 68380 voluntary donors, 608 cases (0.88%) were HbsAg positive. Voluntary donors are more as compared to the replacement donors. Number of HbsAg positive patients were found to more in replacement donor as compared to the voluntary donors.*
Conclusion: *The seroprevalence of Hepatitis B in present study is high among replacement donors. Strict quality control, proper counselling of donors and training of blood transfusion personnel including deferring of suspected donors may reduce transmission of HbsAg.*
Keywords: *Blood donor, Hepatitis B.*

Introduction

Blood transfusion is a potentially significant route of transmission of infections to the recipient. Blood transfusion services are an integral and indispensable part of the healthcare system. The priority objective is to ensure safety, adequacy, accessibility and efficiency of blood supply at all levels[1]. But a large number of transfusion transmitted infections have been emerged. Among these infections, hepatitis B, hepatitis C, and HIV are the most dreadful. Two billion people have been infected with HBV and 360 million have chronic infection worldwide and it is the 10th leading cause of death worldwide causing 500000

to 1.2 million deaths per year due to chronic hepatitis, cirrhosis, and hepatocellular carcinoma[2,3]. In Asia and most of Africa, chronic HBV infection is common and in Western countries, the disease is relatively rare[3]. India is already carrying a burden of 50 million of HBV carriers[4]

According to a report of Lavanchy, India is second for risk of HBV infections (HBsAg carriage 2-7%)[3]. Ministry of health and family welfare, Government of India set up guidelines, under the drug and cosmetic act 1945, for the proper screening of blood donations to combat with TTIs[5,6].

The improved screening and testing of blood donors has significantly reduced transfusion-transmitted diseases in most developed countries. This has not been so in developing nations. Poor health education and lack of awareness result in the reservoir of infections in the population.

The aim of study is to determine the seroprevalence of Hepatitis B among replacement and voluntary donors in blood bank at tertiaty care center, Indore.

Material and Method

The present study included 75090 blood donors attending blood bank at tertiary care center, Indore. All the donor samples were screened for detection of surface Ag of hepatitis B. The seroprevalence of hepatitis B positive donors was calculated over a period of three years since January 2015 to December 2017.

Inclusion criteria- All the adult blood donors were included in the study.

Exclusion criteria - individuals with anemia, weight <50 kgs, history of recent medications, blood transfusion within <3 months duration, recent illness like malaria, typhoid, tuberculosis, allergic reactions.

Result

Table 1- Seroprevalence of transfusion transmittable infections among donor blood samples

Year	Replacement donor	Replacement donor HbsAg positive	Voluntary donor	Voluntary donor HbsAg positive	Total no. of HbsAg positive cases	Total no. of donors
2015	1995	61(3.05%)	19251	181(0.94%)	242(1.13%)	21246
2016	2263	96(4.24%)	24567	201(0.81%)	297(1.10%)	26830
2017	2452	89(3.62%)	24562	226(0.92%)	315(1.16%)	27014
Total	6710(8.93%)	246(3.66%)	68380(91.06%)	608(0.88%)	854(1.13%)	75090

In this study, out of total 75090 blood donors, replacement donors were 6710 (8.93%) while voluntary donor were 68380 (91.06%). Total 854 cases (1.13%) were HbsAg positive in the duration of three year study period.

In our study, out of total 75090 blood donors, maximum cases i.e. 315 (1.16%) cases were found to be positive for HbsAg positive in year 2017.

Here out of 6710 replacement donors, 246 cases (3.66%) were HbsAg positive. While out of 68380 voluntary donors, 608 cases (0.88%) were HbsAg positive.

In present study, voluntary donors are more as compared to the replacement donors. Number of HbsAg positive patients were found to more in replacement donor as compared to the voluntary donors.

Discussion

The seroprevalence of Hepatitis B in present study in 1.13%. Sheetal arora et al.[7] they found thal the prevalence of HBsAg in blood donor population was found to be relatively higher (3.24%). Similar results are also seen in the studies done by Nagarekha Kulkarni[8] who found that prevalence of HbsAg is 3.2%. Arora D et al[9], Tulika Chandra et al[10] and Nilima Sawke et al[11] also found the prevalence as 2.9% , 1.7% and 5% respectively. Despite the fact that a safe and effective vaccine has been available since 1982, the HBsAg prevalence in India remains high. This is because, there are various mutants which might be responsible for increasing trends and also replacement donors conceal information about

their health during donor selection to get the blood for their patient thus compromising blood safety.

In present study, out of 6710 replacement donors, 246 cases (3.66%) were HbsAg positive while out of 68380 voluntary donors, 608 cases (0.88%) were HbsAg positive. Similar results are also found in the study done by Nagarekha Kulkarni[8] The reason for this is Replacement donor during emergency, donate blood without giving proper history of exposure. While voluntary donors are motivated through proper health education and campaigns by large number of blood camps.

Conclusion

In present study, total 75090 units of blood was collected. Seroprevalence of HbsAg was 1.13% over three years study duration, which was more in replacement donors as compared to voluntary donors. Therefore it is safe to encourage voluntary donors than replacement donors as voluntary donors are proper screened and are motivated though various blood camps and also self motivated.

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