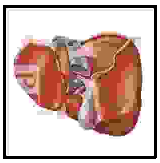

ORIGINAL PROF-624

HEPATITIS B CARRIERS;
DIAGNOSIS AMONG VOLUNTEER BLOOD DONOR STUDENTS AT QUAID-I- AZAM MEDICAL COLLEGE BAHAWALPUR

DR. KHAWAJA MUHAMMAD FAYYAZ
MBBS, M.PHIL
Associate Professor of Biochemistry
Quaid-i-Azam Medical College, Bahawalpur

DR. SHAFQAT ALI, MBBS, FCPS
Assistant Professor of Urology
Head of Urology Department
BVH/Quaid-i-Azam Medical College, Bahawalpur

DR. AAMIR ALI KHAN, MBBS, M.PHIL
Assistant Professor of Microbiology
Quaid-i-Azam Medical College, Bahawalpur

Dr. Muhammad Shafique, MBBS, Ph.D
Professor of Biochemistry
Quaid-i-Azam Medical College, Bahawalpur

Dr. Muhammad Azhar Khan, MBBS, Ph.D
Professor of Physiology
Quaid-i-Azam Medical College, Bahawalpur

Shahid Majeed
Final year MBBS student

Aamir Shahzad Butt
Old final year MBBS student

ABSTRACT

Blood donors are more vulnerable to the viral disease exposure. In this study hepatitis B accidental exposure was aimed to be traced out with various relations. **OBJECTIVES:** Study was framed to see the Hepatitis B carrier rate in volunteer blood donor medical students at Quaid-i-Azam Medical College Bahawalpur. **SETTING:** Record available at the offices of various registered societies doing welfare work and blood donation. **DESIGN:** Retrospective study. **SUBJECTS:** 345 volunteer blood donors were included while 26 were found carrier and dropped out from study. **PERIOD:** 1992 to 1997. **METHODOLOGY:** Latix agglutination test and Immunochromatic technique (ICT) devise for checking HbsAg was used. **RESULTS:** 8.15% carrier rate in normal population and 5.64% in blood donors medical students have been found. **CONCLUSION:** There is no difference between pre clinical and clinical students showing any relation to the contact of patients.

KEY WORDS: Hepatitis B, carrier, Blood Donor, Medical Students, Relations.

INTRODUCTION

Blumberg and his colleagues in 1965 discovered an antibody which reacts with an antigen with the serum of an Australian Aborigine " Australian Antigen" which was renamed Hepatitis B surface antigen (HbsAg) because it has been found to lie on the surface of Hepatitis B virus[1].

The estimates suggest that more than 2000 million people in the world are infected with Hepatitis B and one million die each year from consequential liver disease. The distribution of this disease is unequal[2].

Hepatitis B is largely a disease associated with poor socio economic conditions. Although the developed world is in a privileged condition with regard to HBV.

It still has significant number of carriers. Areas of low endemicity may have pockets of more prevalent disease where ethnic groups have isolated communities e.g. North America Inuit (Eskimo). Aboriginals of Australia and Maoris of New Zealand[3,4].

About 90% adults recover from Hepatitis B completely while 5-90 % of children become chronic carrier[5]. There are nearly 300 million Hbs Ag carriers worldwide. Approximately 10% of patients contracting Hepatitis B as adults and 90% of those as neonates will not clear Hbs Ag from their serum and will be chronic carriers. Natural sero-conversion may occur in old age. Males are six times more likely to become carriers than females. Healthy carriers may show changes in liver from nonspecific minimal to chronic active hepatitis[4,7].

Pakistan has a carrier rate of 8 -10%. This is almost similar in healthy population and in high risk groups like blood donors, doctors and paramedics[8]. It depends upon environmental, behavioural and host factors. Various sources of transmission include parentral, perinatal and sexual routes. Parentral route is especially more common. It includes infected and improperly sterilized instrumentation in surgery, dental surgery, needle pricks, use of non disposable syringes, sharing razors, toothbrushes and ear pricking, manicure, neurological examination, prophylactic inoculation injections, acupuncture and tattooing.

Blood transfusion still remains the major hazard for spread of infection when blood is either screened with improper technique or not screened for Hbs Ag. Hospital staff that has contact with the patient and especially patient's blood has a high carrier rate than general population. This is true for staff of dialysis and oncology units where attendants are infected by coming in contact with infected blood through needle pricks and skin abrasions. Surgeons and dentists are at high risk operating the Hepatits B patients and carriers[9]. There is no evidence that HBV is spread by endoscopies if standard cleansing methods are used[10,11].

Present study was aimed to find out the Hepatitis B carrier rate among volunteer blood donors medical students at Quaid-I-Azam Medical College Bahawalpur.

SUBJECTS & METHODS

This retrospective study was conducted by the Quaid-I-Azam Medical College/BVH Bahawalpur. The data was collected from three registered societies doing welfare work & blood donation activities at QAMC/BVH Bahawalpur, namely Qam-Care, Humanity Services Society, and Helping Hands. It was carried out in male blood donor medical students of Quaid-I-Azam Medical College Bahawalpur during the period of 1992 - 1997.

345 volunteers were checked for HbsAg at the time of their admission in Ist year. Rapid Latex Agglutination test kit (Omega Diagnostic Limited, Scotland, U.K) was used. A positive as well as negative control area was used with each batch. 319 students were registered as volunteer blood donor.

They were divided into 4 groups on the basis of their classes. They were rechecked at different intervals by Latex Test for HbsAg . Those who turned positive for HbsAg were confirmed by the immunochromatography technique (I.C.T. device Japan).

Groups	Classes	No of Volunteers
1	2nd Year	84
2	3rd Year	70
3	4th Year	101
4	Final Year	90
	TOTAL	345

These groups were sub divided into pre-clinical (II year students) and clinical (III, IV, V year students) students on the basis of patient's contact and the results were analyzed.

RESULTS

Table-I, shows grouping and screening of volunteers at the time of admission in 1st year. Out of 345 volunteers 26 were HbsAg positive (8.15%). This results of 4 different groups showed the carrier rate of 6.66% – 9.78% in the normal population.

Table-II represents Hepatitis-B carrier donors in different classes. Out of 319 volunteers, 18 become HbsAg positive (5.64%). The four different groups had a carrier rate of 3.75% to10.76%.

Table-III, indicates Hepatitis B carrier blood donors based upon preclinical & clinical groups. Out of 319 volunteers, 78 volunteers fell into pre-clinical group while 241 in the clinical group. Out of 78 pre-clinical volunteers, 4 were HbsAg positive (5.13%), while out of the 241 clinical volunteers 14 were HbsAg positive (5.81%). The p value between the pre-clinical and clinical groups is 0.05 which is not significant.

Table-I. Grouping and screening of volunteer medical students for HbsAg at the time of admission in 1st year.

Groups	Classes	Total	HbsAg (-i've)	HbsAg (+i've)
1	2nd Year	84	78	06 (7.14%)
2	3rd Year	70	65	05 (7.14%)
3	4th Year	101	92	09 (9.78%)
4	Final Year	90	84	06 (6.66%)
TOTAL		345	319	26 (8.15%)

Range of carrier rate is 6.66% – 9.78% in the normal population. (Average rate: 8.15%)

Table-II. Hepatitis B carrier blood donors in different classes.

Groups	Classes	Total	HbsAg (-i've)	HbsAg (+i've)
1	2nd Year	78	74	04 (5.13%)
2	3rd Year	65	58	07 (10.76%)
3	4th Year	92	88	04 (4.34%)
4	Final Year	84	81	03 (3.57%)
TOTAL		319	301	18 (5.64%)

Range of carrier rate is 3.57% – 10.76% in blood donors.(Average rate: 8.15%)

DISCUSSION

The prevalence of HbsAg in the blood donors has been reported 0.004% – 18% in various parts of the world[12,13]. A very high prevalence has been reported in Pakistan. Screening of health care personal in hospitals at Karachi showed that 7% doctors, 17% dentists, 5% paramedics and 20% sweepers were HbsAg positive. Similarly screening of healthy blood donors showed 4.9% HbsAg reactive[14]. Our results show a carrier rate of 6.66% – 9.78% (8.15%) in the normal population. These results are in agreement with Malik et al 1995[17],

Table-III. Hepatitis B carrier blood donors in preclinical & clinical groups.

Groups	Total	HbsAg (-i've)	HbsAg (+i've)
pre-clinical 2nd Year	78	74	04 (5.13%)
clinical 3rd, 4th & Final Year	241	227	14 (5.81%)

Range of carrier rate is 3.57% – 10.76% in blood donors.(Average rate: 8.15%)

Pirzada et al 1996[18] and Zubairi 1997[19].

In present study HbsAg carrier rate was 3.57%–10.76% (5.64%) in the various classes at Quaid-I-Azam Medical College Bahawalpur. Our results are nearly similar to those presented in N.I.H and P.M.R.C which showed the rate about 5.8% – 7% (21). In the twin City of Rawalpindi/Islamabad study carried out during 1980 – 1984, more than 10000 donors were checked for HbsAg. Carrier rate was 10% which is very similar to our study. The blood donors of army had highest carrier rate of HbsAg which is 10.79%. Study of Red Crescent Society had the lowest rate which is 3.89%, while Poly Clinic Islamabad study showed the rate of 5.8%[22]. HbsAg carrier rate has been reported from India in blood donors about 2.2%[20]. The variation in prevalence of HbsAg in blood donors depends upon use of different techniques for screening purpose and professionally paid donors[16].

In 1998, by using ELISA, the medical students and military recruits produced a carrier rate of 5.3% and 10.7% respectively[23]. Our results are in high contradiction with the study carried out at Bahawalpur, Bahawalnagar and Rahim Yar Khan blood banks during routine blood donation. It reflected a carrier rate of

0.23% – 1.64% (average 1.11%)[24]. But the wide range of HBV carrier in our study from 6.66% – 9,78% in normal population may depends upon the geographical distribution of blood donor i.e. big city town, village and interior of remote areas where the preventive measures are variable. The wide range of carrier in our study and other may be due to use of various techniques used over the last 20 years.

In conclusions we could not find any difference between pre-clinical and clinical students to locate different causative factor in relation to patients and wards. This observation shows that both groups might have same causative factors like prick, common use of razor and accidental exposure to the HbsAg positive patients. The indulgement in sexual act, use of non disposable syringe, transfusion of unchecked blood for viral disease and common pricker in laboratories & Blood bank etc can not be overlooked.

It is suggested that the search may be continued on a coordinated forum as a multicentric nationwide study to find out commonest route of transmission along with the role of sex by social research worker.

ACKNOWLEDGMENT

The authors and General Secretary Pakistan Society for Chronic Ailments Welfare Bahawalpur (Regd) highly appreciate the participation of Executive members of society and all the medical students who worked to collect the data, locate the Hepatitis-B carrier volunteer blood donors and educate them.

REFERENCES

1. Blumberg BS, Alter HJ, Visnish S.A. "New antigen in leukemic sera" JAMA 1965; 199: 541.

2. Rourc C. Overview of epidemiology and disease burden of Hepatitis B in European region. Vaccine 13(Suppl 1): 1995; S18-21.

3. Minua GY, Nicolle LE, Posti B, Waggoner JG, Hoofnagle JH. Hepatitis virus infection in an isolated Canadian Inuit (Eskimo) population. J Med Virol 1982; 10:225-64.

4. Wan X, Currie B, Miller N, Mathews JD. Acute hepatitis B infections in Aboriginal Australians. Aust J Public Health 1993; 14: 331-3.

5. Thompson SC, Ruff TA. Hepatits B vacicnation: what are the current international recommendations? Clin Immunoother 1995; 3:14-26.

6. Ghendon Y. Perinatal transmission of Hepatits B virus in high incidence countries. J Virol Methods 1987; 17:69-79.

7. Reincke V, Dybkjaer E, Poulsen H et al. A study of Australian antigen positive blood donors and their recipients, with special reference to liver histology. N Engl. J Med. 1972; 286:867.

8. Malik IA, Ahmad A, Iqbal M et al. Infections with delta agent in Pakistan. Introduction of a new hepatitis agent. J Pak Med. Ass. 1989; 38:126.

9. Welch J, Webster M, Tilzey AJ et al. Hepatitis B infection after gynaecological surgery. Lancet 1989; 1:205.

10. Zuberi SJ, Lodhi TZ. Sub specificities of Hepatitis B surface antigen. J. Pak Med. Ass. 1978;September 3, 2002 28:8.

11. Villa E, Pasquinelli C, Rigo G et al. Gastrointestinal endoscopy and HBV infection: no evidence for a casual relationship. Gastrointest. Endosc: 1984; 30:15.

12. Pol S, Thiers V, Nalpas B et al. Monoclonal anti-HBs antibodies radioimmunoessay and serum HBV-DNA hybridization as diagnostic tools of HBV infection: relative prevalence among HbsAg negative alcohlics, patients with chronic hepatitis or hepatocellular carcinomas and blood donors. Eur. J. Clin. Invest: 1987; 17:515-21.

13. Hyams KC, Cross ER, Bianco MA, Soyk-Sarty Dr, Roper CM, Dahut WL, Holmberg JA. Geographic risk factors for viral hepatits and cytomegalvirus infection among United States Armed Forces blood donors. Transfusion: 1992; 32: 644-7.

14. Mujeeb SA, Mahmood K. Prevalence of HBV, HCV and HIV infections among family donors (for publication).

15. Walker RH. Special report: Transfusion risks. Am J Clin Pathol: 1987; 88:374-8.

16. Roychoudhury A, Bhattacharyya DK. Incidence of Hepatitis B carriers in Calcutta, West Bengal. J. Ass. Physicians India 1989; 37:160-1.

17. Malik IA, Tariq WUZ. The prevalence and pattern of viral hepatitis in Pakistan (Ed.) JCPSP: 1995; 5:2-3.

18. Pirzada ZA, Malik R, Rathi SL, Shiekh SA, Shiekh WM. Prevalence of Hepatitis B carriers in Chandka Medical College and Hospital staff Larkana. Pak. J. Med. Res. 1996; 35:183-4.

19. Zuberi SJ. Hepatitis B, not to be forgotten. Paper presentation in symposium on viral hepatitis. CPSP Karachi 8 November 1997.

20. Choudhery N, Ramesh V, Saraswat S, Naik S. Effectiveness of mandatory transmissible disease screening in Indian blood donors. Indian J Med Res: 1995; 101:229-32.

21. PMRC. Annual report 1980-81. Barqsons printers Islamabad. 1981.

22. Kazmi K, Ghafoor A, Burney MI. Prevalence of HbsAg among blood donors of Islamabad. J. Pak. Med Res: 1985; 24:181-2.

23. Malik Laa, Legters LJ, Luqman M, Ahmad A, Qamar MA, Akhter KAK, Qureshi MS, Duncan F, Redfield RR. Serological markers of Hepatitis A & B in healthy population in Northern Pakistan. JPMA: 1988; 38: 69-72.

24. Yousaf M, Hassan SMA, Kazmi S. Hepatitis B carriers; Prevalence of HbsAg among volunteer blood donors in Bahawalnagar division. The Professional: 1998; 5:267.

He who is the most slow in making a promise is the most faithful in the performance of it.

Rousseau