EPIDEMIOLOGICAL PROFILE OF HOSPITALIZED VIRAL HEPATITIS CASES

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ABSTRACT

153 cases of viral hepatitis admitted to a Services hospital during the period 1995-97 were analysed for various epidemiological variables. 54 (36%) cases were found to be Hbs Ag positive. Relative risk of developing hepatitis was found to be highest amongst the other ranks (OR). Three fourth of all cases had contracted the infection while being away from their units. Route of acquiring infection could not be found in 80% of cases. It is important to educate the troops on the danger, mode of transmission and preventive measures of the disease. An immunisation policy for all soldiers at the time of entry needs to be considered seriously.

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KEY WORDS : Armed Forces personnel; Hepatitis A; Hepatitis B.

Introduction

Viral Hepatitis is a health problem throughout the world and the armed forces are also not spared from this dangerous disease. In fact the armed forces personnel fall in the high risk category for this disease since the troops are congregated and many soldiers depend upon one cook-house, there is a constant threat of contracting hepatitis A/E virus. Staying away from wives, vulnerability to extra-marital sexual exposure, potential for homosexuality, excessive movements and young age of the soldiers are some of the important risk factors, particular to the armed forces personell for hepatitis B.

HBV has been found to be causative agent for acute hepatic failure in 335 cases [1]. 80% of all cases of hepato cellular carcinoma world wide are found to be due to HBV [2].

In the light of these facts it was considered worthwhile to carry out a study on hepatitis, to study the epidemiological factors associated.

Material and Methods

One hundred and fifty three cases admitted to a service hospital in Northern Command, as cases of hepatitis over the past two years formed the material for the present study. The cases were clinically examined. A questionnaire elaborating the salient personal and epidemiological data was administered through interview technique. The epidemiological data included dates of onset of illness, reporting sick, history of movement in the preceding two months, any history of blood transfusion/injections, history of contacts, frequency of eating outside, sources of water and milk, history of any similar illness in the neighbourhood, etc. Sera were tested for Hbs Ag, for all the cases, RPHA (Reverse Passive Haem Agglutination) method was employed using 'Green Cross Kit' from Korea. The data was analysed using simple statistical methods.

Results

Hbs Ag positivity: Table 1 shows Hbs Ag positivity in various studies done since 1956. As many as 36% cases were found to be positive for Hbs Ag in the present study.

Rankwise distribution of cases: Table 2 shows the rankwise distribution of cases and the index of incidence of hepatitis B among various categories of patients. It is brought out that 1.85% cases each occurred amongst officers and JCO as against 96.30 cases amongst OR. But their index of incidence was 0.46, 0.26 and 1.08. This implies that the relative risk of developing hepatitis B in OR is about 4 and 2.5 times higher than JCOs and officers.

Age distribution: Table 3 shows the age distribution of patients. Maximum number of cases occurred in the age group of 21 to 40 yrs (90%).

Miscellaneous Facts: 39 (25.5%) cases were classified as fresh local and 112 (73.2%) cases as fresh imported (Table 4). 11.1% gave past history of jaundice. 37 (24.2%) cases gave a history of movement out of station with in incubation period of the disease. No epidemic was reported during the study period.

Probable route of acquiring infection: Three individuals gave a history of having received an injection (5.5%) and one, of a blood transfusion within the incubation period. One individual gave history of a sexual exposure outside marriage and was Hbs Ag positive (1.9%). No probable route of transmission could be recognised in 9/79.6% cases (Table 5).

Serum Bilirubin Levels: About 70% of all serum bilirubin levels were of the order of 6 mg% or less. Only 4.6% cases had a bilirubin level of more than 10 mg% (mean 5.13 mg%)

Discussion

Hbs Ag Positivity: A high incidence of Hbs Ag positivity was observed in the present study (36%). This is amongst the highest of all studies done in India [1,3,4,6]. Incidence in the armed forces set up has been found between 20.68 to 65.38% [7-10]. A similar study done in London on admitted cases of hepatitis quote the incidence as 49% [5]. A higher percentage of Hbs Ag positivity in the services could be attributed

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TABLE 1
Proportion of HBsAg positive cases

Worker	Place	Year	Study population	%of HBsAg+ cases
Pavri <i>et al</i> [3]	Delhi	1956	Cases from an epidemic	20
Hills <i>et al</i> [4]	Delhi	1968	Spordic cases	12
Cossart <i>et al</i> [5]	London	1970	Admitted cases	49
Sama <i>et al</i> [6]	Delhi	1971	Sporadic cases	12.2
Dutta <i>et al</i> [7]	Delhi	1972	Service personnel	20.68
Pal <i>et al</i> [8]	Chandigarh	1973	Service Personnel	23
Tandon <i>et al</i> [1]	North India	1984	Adult patients	42
Ganguli <i>et al</i> [9]	South Comd	1989	Admitted service pers	32
Pruthi <i>et al</i> [10]	Delhi	1989	Admitted patients	65.38
Present study	North India	1997	Admitted service pers	36

TABLE 2
Index of incidence of hepatitis B - All ranks

Category	Total No. of cases	Hepatitis-B No.	%	Relative proportion of	Proportional Str in Hepa B cases	Index of Incidence service
Offrs	3	1	1.85	0.0185	0.040	0.46
JCOs	6	1	1.85	0.0185	0.070	0.26
OR	144	52	96.30	0.9630	0.890	1.08
Total	153	54	100.00	1.000	1.000	-

TABLE 3
Age wise distribution of hepatitis cases

Age (Yrs.)	Total cases		Hepatitis A		Hepatitis B		% of Hepa B out of total
	No	percent	No	percent	No	Percent	
0-20	3	2	0	0	3	5.6	100
21-30	69	45.1	51	52	18	33.3	26
31-40	69	45.1	42	42	27	50	39
41-50	12	7.8	6	6	6	11.1	50
	153	100.0	99	100	54	100.00	35

to (a) Higher exposure of personnel to injections. (b) Higher vulnerability and exposure to pre/extra marital sex. (c) Homosexuality, even though none of the subjects interviewed, conceded to this fact [10]. (d) Higher detection rate, as the HbsAg test is a mandatory requirement for all hepatitis cases.

The source of HBV infection could be found in five (9.2%) cases only. Out of these, three (5.5%) had probably contracted it from injections and one (1.9%) each from blood transfusion and sexual exposure. Source of other 43 (79.6%) HBV cases could not be arrived at. One explanation for this could be the wrong information given by the patients. The other explanation could be a horizontal transmission of virus (defined as virus transmission unrelated to recognised sexual, perinatal or parenteral exposure), which has been proposed in cross sectional prevalence surveys

[11]. Almost similar trends are seen in the Taramani study and study done by Pruthi *et al* where 59.5% and 88.2% cases show no traceable source. 11.6% gave a history of blood transfusion (Table 5).

Age and Rank Structure: The present study showed that more than 90% of hepatitis cases occurred in the age group of 21 to 40 years. A similar trend of 78.76% cases within the age group of 30 yrs was seen in the study conducted by Ganguli *et al* in 1989.

The other ranks had a greater probability of developing hepatitis as compared to JCOs and Officers. This may be due to the fact that OR lead a comparatively more active life and are more prone to the risk factors.

There is a pressing need to educate the troops, especially the young OR on the mode of transmission, dan-

TABLE 4
Miscellaneous facts

Nature of cases	Number	Percent	HBs AC+
Fresh local cases*	39	25.5%	15
Fresh imported cases**	112	73.2%	39
H/O movement out of station	112	73.2%	39
Report of any epidemic	Nil	—	—

*Fresh local : A fresh case, who had not moved out of duty station during incubation period.

**Fresh imported : A fresh case, who had been out of duty station for a substantial period (3/4 of incubation period), during incubation period.

TABLE 5
Probable route of acquiring infection (HBV)

Route	Present study (n=54)		Taramani study (n=46) (11)		Pruthi <i>et al</i> (10) (n=136)	
	Number	Percent	No	percent	No	percent
Previous episode of jaundice	6	11.1	30	20.5	-	-
Blood transfusion	1	1.9	6	4.1	-	-
Earlier operation	-	-	8	5.4	-	-
Prolonged Hospitalisation	-	-	10	6.8	-	-
Hospital worker	-	-	-	-	6	4.4
Series of injections	3	5.5	17	11.6	8	5.9
Sexual contact	1	1.9	4	2.7	2	1.5
No recognizable source	43	79.6	87	59.5	120	88.2
	54	100.0	146	100.0	156	100.0

gers and preventive measures of hepatitis. The health education concepts need to be reinforced when the individual goes on leave/TD, as there are very high chances of him contracting the disease then. There is a need for open discussion between the troops and the authorised medical attendant on subjects of hepatitis and STDs, their transmission and importance on simple preventive measures like the condom. Immunisation policy, especially for young soldiers (with HBV vaccine) needs to be considered and implemented.

REFERENCES

1. Tandon BN, Gandhi BM, Joshi VK. Etiological spectrum of viral hepatitis in North India, Bull WHO, 1984;62:67-70.
2. Benenson AS. Control of Communicable Disease in Man, 15th edition. The American Public Health Association, Washington 1990-6.
3. Pavri KM, Niphadkar KB, Sheikh BH. Retrospective studies on Australia Antigen during Hepatitis epidemic at Delhi in 1956. Ind J Med Res 1972; 61:1575-8.
4. Hills WD, Patnayak S, Arora DD. Detection of Australia antigen in Viral Hepatitis. Ind J Med Res 1970;58:1172-5.
5. Cossart YE, Vehrman J. Studies of Australia antigen in sporadic viral hepatitis in London. BMJ 1970;1:403-5.
6. Sama SK, Anand S, Gandhi PC. Australia Antigen in normal population and patients in Delhi IJMR 1971;59:64-8.
7. Dutta RN, Mohammed GS. Incidence of Australia Antigen in blood donors and viral hepatitis cases. IJMR 1972;60:1974.
8. Pal SR, et al. Serum hepatitis antigen amongst patients with liver disease and blood donors. IJMR 61:1784-98.
9. Ganguli SK, Kabra SC, Ganguly SS. A retrospective study of Hepatitis B cases among service personnel in Southern Command 1986. MJAFI 1989;45:19-22.
10. Pruthi HS, Sapra ML, Rajput AK, rajgopalan MS, Paul JS. Serological markers in acute viral hepatitis. MJAFI 1989;43:3:167-71.
11. Thyagarajan SP, Jayaram S, Mohanvallil B. Prevalence of HBV in General population in India. In: Sarin SK, Singal AK, Editors, Hepatitis B in India: Problems & Prevention, 1st edition. New Delhi: CBS publishers, 1996;5-16.