

A STUDY OF PREVALENCE OF HEPATITIS C VIRUS IN AMALAPURAM, ANDHRA PRADESH

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ABSTRACT

Background :

The prevalence of hepatitis C in patients with liver disease is known to be high and several studies have been carried out to evaluate the burden of this disease in society. However, limited data is available as to the prevalence of HCV in general population, particularly in rural areas of India.

Aim :

To assess the prevalence of HCV infection and risk factors involved among the out patients and in patients of Orthopaedics, Gynaecology and Surgery departments of Konaseema Institute of Medical sciences, Amalapuram, India.

Methods :

The study group was selected by using systematic random sampling (every second patient) and screened for HCV by ELISA method and various risk factors were evaluated by questionnaire. A total of 2356 patients were screened for HCV. Results were analysed by using SPSS 10.0 version of the statistical program.

Results:

The seroprevalence of HCV was found to be 7.8% and two most common risk factors identified among the HCV positive patients were exposure to contaminated syringe needle from unqualified practitioners in both the sexes (62.2%) and contaminated shaving blades from barber shops for only male patients (62%).

Conclusions:

Prevalence of HCV found in this study is unusually high compared to other similar studies. Health education programs to protect from risk factors.

Key Words : Prevalence, Hepatitis C Virus, AP.

Abbreviations Used: HCV-Hepatitis C virus, HBV- Hepatitis B virus, ELISA-Enzyme linked immuno sorbent assays.

INTRODUCTION:

Hepatitis C virus (HCV) is one of the major aetiological agents of parenterally acquired hepatitis. HCV infection is asymptomatic in a large proportion of cases (65-75%) and revealed only accidentally by abnormal liver function tests and /or anti-HCV positivity. The long-term morbidity and mortality is far greater than its counterpart hepatitis B in terms of chronic active hepatitis (70%), cirrhosis (20-30%), hepatocellular carcinoma and liver failure⁽¹⁾. It has been estimated that global prevalence of hepatitis C virus (HCV) infection is around 2% with 170 million persons chronically infected with the virus and 3 to 4 million persons newly infected each year⁽²⁾. A study conducted on blood donors in Aligarh found 0.15% prevalence of HCV⁽³⁾.

In India, detection of HBV infection among blood donors is carried out by HBsAg screening while detection of HCV is rarely done⁽⁴⁾. In this study we aimed to assess the prevalence and risk factors of HCV in two consecutive years, 2008 and 2009, among patients admitted in departments of Orthopaedics, Gynaecology and Surgery at our institute.

Materials & Methods :

This study was carried out in the department of microbiology, Konaseema institute of medical sciences & research foundation, Amalapuram, A.P from 2008 to 2009.

Study Group & Sampling :

Inclusion criteria: All the patients who are posted for treatment in departments of Orthopaedics, Gynaecology and Surgery during the years 2008 and 2009, both the in patients and out patients formed the study group.

Exclusion criteria:

Patients who have either past or present history of liver disease. Sampling: Patients were selected by using systematic random sampling i.e. every second patient.

Methodology :

Subjects were provided with a questionnaire. A detailed history of blood transfusion, parenteral drug usage,

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surgical & medical intervention and sexual habits was taken. In all the patients 10ml blood was collected using a disposable syringe. Serum was separated and a Tridot test was done immediately. In all the cases which were positive for anti HCV antibodies by Tridot test, the serum was frozen and preserved. All the positive serum samples so collected were subjected to ELISA[antiHCV, LG HCD 3.0 plus: LG life sciences Ltd Korea.] at later date. All the serum samples were simultaneously screened for HBV by hepacard[span diagnostics] and ELISA[hepalisa, J.Mitra &Co Ltd, India] method as per manufacturer's specifications.

Ethical clearance: Participation was voluntary and informed consent for interviewing and blood tests was obtained. Participants who tested positive for anti-HCV antibody were offered post test counseling by specialists. The study protocol was approved by the Ethics Committee of Konaseema Institute of Medical Sciences and research foundation.

Statistical analysis: Data was analyzed using the SPSS version 10.0 statistical program. Chi square test was used for comparisons between proportions, with a set at the 5% level. Analysis for significant risk factors was conducted using logistic regression for univariate analysis and backward stepwise-logistic regression for multivariate analysis. Variables in univariate analysis with P values lower than .25 were included in the baseline model. Interaction and correlation among variables were assessed before the multivariate analysis

Results:

Of the 2389 participants approached, 2356 (98.6%) agreed to participate. Ages of participants ranged from 18 to 72 years, with mean of 40.3 years. The proportion of male (61%) are more compared to female participants (39%). Most participants were farmers (34%) and housewives (32%), and 34.3% of them had no education, 32.5% of them had only primary education and 11.7% of them had graduation or above graduation (Table-1).

Out of 2356 participants tested for HCV antibodies , 188 were positive by Tridot test and among those 188, three samples were negative by ELISA, which were not considered for data analysis i.e. 185 cases were analyzed. The prevalence of HCV infection was 7.8% (185/2356, 95% CI: 0.4%–1.9%), with no significant association with age or gender (Table 2).

Variables	No of participants
Age :	
< 25 yrs	127(5.3%)
26-35 yrs	213(9%)
36-45 yrs	497(21%)
46-55 yrs	589(25%)
56-65 yrs	754(32%)
> 65 yrs	176(7.7%)
Gender :	
Male	1437(61%)
Female	0919(39%)
Educational Level :	
Illiterate	809(34.3%)
Primary education	719(30.5%)
High School	556(23.5%)
Graduation & above	272(11.7%)
Occupation	
Farmer	803(34%)
Student	118(5%)
Teacher	217(9.2%)
Govt employee	196(8.3%)
Health worker	052(2.2%)
Retired	214(9%)
House wife	706(30%)
Others	050(2.3%)

Table 1: Demographics of the study group

All anti-HCV antibody positive participants had at least one parenteral risk factor; 32 of them exposed to reuse of shaving razor in barber shop, three had blood transfusion, 107 cases had a history of injection as a part of medical treatment by unqualified practitioners, two had a history of surgery and none had tattoo and acupuncture

Age	No. of participants	HCV positive	Sex	
			Male	Female
< 25 yrs	127 (5.4%)	11(8.6%)	7	4
26-35 yrs	213(9%)	17(7.9%)	12	5
36-45 yrs	497((21%)	39(7.8)	24	15
46-55 yrs	589(25%)	46(7.8%)	25	21
56-65 yrs	754(32%)	59(7.8%)	34	15
> 65 yrs	176(7.6%)	13(7.3%)	9	4
Total	2356	185(7.8%)	113	072
Overall prevalence=7.8% $\chi^2 = 0.92$ P= 0.63 Degree of freedom(DOF) = 3				

Table-2 Age and Sex distribution of Patients' Positives for HCV

Variables	N	n	OR	95% CI	P-Value
Occupation :					
Farmer	703	43	1		
Student	118	14	1		
Teacher	217	19	1		
Govt employee	196	12	0.8	0.04-3.4	0.01
Health worker	052	09	1		
Retired	214	19	1		
House wife	806	61	1		
Others	050	08	1		
Age :					
< 25 yrs	127	11	1		0.72
26-35 yrs	213	17	1.22	0.4-4.2	
36-45 yrs	497	39	1		
46-55 yrs	589	46	1		
56-65 yrs	754	59	1		
> 65 yrs	176	13	1		
Gender :					
Male	1437	113	1.18	0.8-2.1	0.34
Female	0919	072	1		
Education :					
Illiterate	809	071	1		
Primary education	719	058	0.86	0.4-3.6	0.67
High School	556	031	1		
Graduation & above	272	025	1		
History of Medical Treatment :					
	1980	078	1		
A) No	376	107	6.20	2.2-38.2	<0.0001
B) Yes					
History Of Blood Transfusion					
	2304	182	0.9	0.4-1.6	0.14
A) No	0052	003	1		
B) Yes					
History of Tattoo / Acupuncture					
	2356	185	1	0.12-4.12	0.23
A) No	0000	000			
B) Yes					
History of I.V. drug abuse					
	2356	185	1		
A) No	0000	000			
B) Yes					
Shaving Razor					
	1174	153	1		
A) No	0263	032	7.8	3.2-46.1	<0.0001
B) Yes					
Multiple sexual partner					
	2178	174	1		
A) No	0178	011	1		
C) Yes					

Table-3 Risk Factors in patients with HCV

Significant associations with HCV included having a history of reuse of shaving razor (odds ratio [OR]: 7.80; 95% confidence interval [CI]: 3.2–46.1; $P < .0001$) and having injection with reused syringes (OR: 6.20; 95% CI: 2.2–38.2; $P < .0001$) (Table 3). In multivariate analysis these two factors found to be significant.

Discussion :

The prevalence of HCV infection of 7.8% is alarmingly high compared to earlier studies from Andhra Pradesh of 1.4% prevalence in a camp study (Chandra et al) and 2.02% prevalence in tribal population. It is also high compared to the studies from West Bengal 0.71% and 0.09% in rural population of Maharashtra⁽⁵⁾. The present study is in accordance with the study done in tribal population of Arunachal Pradesh which shows a prevalence of 7.8%⁽⁶⁾.

The various studies done on prevalence of HCV in voluntary and replacement blood donors, show a prevalence of 1 to 4%, however very high prevalence has been reported among the commercial blood donors⁽⁷⁾.

The hospital based study group consisted of rural and semi urban population with low literacy, mostly farmers and labourers within low socioeconomic group. More than 50% of them had exposure to parenteral route of intervention, history of having been treated for minor ailments at home by the local health care providers and history of hospitalization. Majority of study population also gives history of injections with reused syringes from these practitioners and visit to road side barbers. The practice of unsafe injections in the healthcare settings as a major contributor to HCV transmission in developing countries is well accepted^[8,9,10]. The World Health Organization has estimated that 16 billion health care injections are administered annually in its developing and transitional member countries^[11] and that overuse and unsafe injecting are in epidemic proportions. An estimated 2.3 to 4.7 million HCV infections per year are due to unsafe injecting practices in the developing world.^[12] A minor population gives history of blood transfusion in the past and multiple sexual partners.

The prevalence of HBV was found to be 1.71% in the hospital based population of Amalapuram which is in accordance with the other studies carried in India. HBV was found to be equally distributed among both the sexes, high prevalence was found in persons below 30 yrs of age.

The rural population residing in coastal districts of Andhra Pradesh shows a very high prevalence of HCV infection, where as such alarming figures are not associated with HBV. There was no occupation related risk factor associated with the hospital-based population studied. The possible risk factors that emerged after analysis of the questionnaire are, wide spread reuse of disposable syringes, reuse of razors by barbers and hazardous parenteral infusions practiced by local health care providers. However, demonstration of HCV in samples

from reused syringes used by local practitioners and shaving Razors from various barber shops would have given an exact proof regarding source of infection. Recall bias might have influenced our findings, but this would be non-differential as participants were unaware of their sero-status at the time of their interview.

Thus to conclude there is lack of information on prevalence of HCV in general population and related risk factors. Several studies carried out earlier are limited to prevalence of HCV in blood donors. There is a need to carry a larger population based study to know prevalence and to identify the risk factors associated with HCV and there by intervention to break the chain of transmission.

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