

Original Article

Seroprevalence and risk factors of hepatitis C virus (HCV) in Mardan, NWFP: a hospital based study.

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ABSTRACT:

Objective: To assess the seroprevalence of hepatitis C virus (HCV) infection and risk factors among hospital patients in District Headquarter Hospital Mardan.

Material and Methods: We used ACON Laboratories, Inc. HCV One Step Test Device (USA) kit to test for the qualitative detection of antibodies to Hepatitis C Virus in serum. All patients were asked and completed an HCV questionnaire. The questionnaire asked, what factors or activities put people at risk for getting HCV and question about their own risk factors and general habits. In each case, details regarding socioeconomic status were recorded.

Result: The study population comprised of 700 patients, 523 (74.7%) males and 177 (25.3%) females with mean age 32.16 ± 13.08 years. The overall seroprevalence was found to be 9%. The seroprevalence in males and females was 7.8% and 12.4% respectively. History of reused syringes, blood transfusion, dental procedure and surgical operation were significant risk factors for acquiring HCV infection. General weakness was the commonest symptom in HCV positive patients. Smoking and naswar (tobacco) were common in HCV positive male patients.

Conclusion: The overall seroprevalence was found to be 9% in Mardan. History of reused syringes, blood transfusion, dental procedures and surgical operations were significant risk factors for acquiring HCV infection. The prevention of HCV infection can be achieved by blood screening for HCV before donation, avoiding sharing needles or any injecting equipment and following safe sexual practices. (Rawal Med J 2004;29:57-60)

Key Words: Hepatitis C, seroprevalence, risk factors

INTRODUCTION

Hepatitis C virus (HCV) was first identified in 1989.¹ HCV is a heterogeneous virus with at least 6 genotypes and numerous subtypes identified around the world.² Its prevalence is highest (17% to 26%) in Egypt, intermediate (1% to 5%) in eastern Europe, the Middle East, the Indian subcontinent, low (0.2% to 0.5%) in western Europe and North America.

It is estimated that 200 million people worldwide are infected with the HCV.³ The overall prevalence of anti-HCV antibodies was 2% in Spain,⁴ 3.9% in Jakarta, Indonesia⁵ and 1.25% in Zakynthos Greek.¹² The seroprevalence of HCV in hospital based studies done in Mauritius,⁷ Ethiopia⁸ and South India⁹ showed a seroprevalence of 5.9%, 6% and 4.8% respectively. WHO estimates indicate 10-24 million HCV-infected persons in India and seroprevalence of 2.4% in

Pakistan..

The predominant role of blood transfusion and injection drug use in the transmission of HCV has consistently been reported worldwide.¹⁰ Risk factors as reported by various workers are parenteral drug abuse,¹¹ blood or blood product transfusion,^{4,5,12} tattooing,¹³ surgical procedures,¹⁴ reused/contaminated syringes¹⁵ and dental procedure.^{13,17} The aim of this study was to assess the seroprevalence of HCV and risk factors for its acquisition in hospitalized patients in Mardan

MATERIAL AND METHODS

Blood samples from 700 patients admitted in the District Head Quarter (DHQ) Hospital Mardan from September 2003 to February 2004 were selected for the study. Patients with known liver disease were excluded from study. All patients were asked and completed an HCV questionnaire. The questionnaire asked, “what factors or activities put people at risk for getting HCV?” and specific question about their own risk factors and general habits. In each case, details regarding socioeconomic status were recorded.

We used ACON Laboratories, Inc. HCV One Step Test Device (USA) kit to test for the qualitative detection of antibodies to Hepatitis C Virus in serum. Statistical analysis was performed using Statistical package for the social sciences (SPSS) Version 10. Binary logistic regression model and Pearson chi-square tests were used to determine independent variables and comparisons.

RESULTS

There were 523 (74.7%) males and 177 (25.3%) females. The mean age was 32.16 ± 13.08 years (range 4-80). Out of these 700 patients, 63 (9%) patients were positive for anti-HCV. Out of these there were 41 (7.8%) males and 22 (12.42%) females (table-1). In case of positive patient the mean age was 36.10 ± 11.131 years and in negative patients it was 31.77 ± 13.201 years.

The mean monthly income of all patients was Rs. 4825.6 ± 2164.5 (range 1200-15,000). In case of positive patients mean monthly income was Rs. 4085.7 ± 1487.7 and Rs. 4899 ± 2207.8 in negative patients. When the seroprevalence of HCV was compared statistically with marital status, education and location i.e rural and urban, it was higher in married patients as compared to unmarried patients and higher in rural as compared to urban area.

Table-1: Age and gender distribution of patients with HCV seropositivity.

Age Groups (in years)	Number of patients	Male Tested	Males Anti-HCV+(%)	Females Tested	Females Anti-HCV+(%)	Total Anti-HCV
0-19	112	89	4(4.5%)	23	1(4.3%)	5
20-39	417	290	20(6.9%)	127	16(12.6)	36
40-59	146	120	15(12.5%)	26	5(19.2%)	20
>60	25	24	2(8.3%)	1	0	2
Total	700	523	41(7.8%)	177	22(12.4%)	63(9%)

Out of 700 patients, 114 patients had used contaminated (reused) syringes and 33 patients show

positive result for anti-HCV; 61 gave history of blood recipients (blood transfusion) and 17 patients were positive for anti-HCV; 155 patients had history of dental procedure and 36 patients positive for anti-HCV; 238 patients had history of surgical operation and 40 patients were positive for anti-HCV (table-2). Logistic regression analysis showed strongest association of HCV with general weakness. In general habits, smoking and naswar (tobacco) were significant in HCV positive male patient.

Table-2: Comparison of reused syringes, blood recipient, jaundice, surgical operation, dental procedure, barber shave along with the low income as a potential co-factor for HCV infection.

Variables in the Equation	P value (Sig.)	OR	95.0% C.I.	
			Lower	Upper
Reused Syringe (Yes)	.000 (S)	4.966	2.600	9.485
Blood Recipients	.018 (S)	2.597	1.179	5.722
Surgical Operation (Yes)	.016 (S)	2.167	1.157	4.060
Dental Procedure (Yes)	.000 (S)	5.755	3.145	10.529
Barber Shave(Yes)	.068 (NS)	1.796	.957	3.370
Jaundice(Yes)	.919 (NS)	.914	.160	5.218
Monthly Income(Low)	.060 (NS)	2.162	.969	4.823
Constant	.000	.010		

Note. OR= Odds Ratio; CI= confidence interval

DISCUSSION

The Hepatitis C virus infection appears to be endemic in most parts of the world with an estimated overall prevalence of 3% and is responsible for a large number of cases of chronic liver disease worldwide.

However, hospital based studies from Mauritius,⁷ Ethiopia,⁸ and South India⁹ showed an HCV seroprevalence of 5.9%, 6% and 4.8% respectively while it was 0.65 to 6.25 from Jordan.¹⁸ In Mardan, the overall prevalence of HCV in hospital patients was 9% which was higher as compared to above studies. The prevalence rate is known to vary considerably from country to country, probably because of cultural factors and social habits that influence HCV transmission.¹⁹ There was a trend of increasing prevalence of HCV with age^{5,6} and rural area with a significantly higher prevalence reported from Zakynthos, a Greek island.⁶

Transfusion of contaminated blood, surgical operation, dental procedure with inadequately sterilized instruments, repeated injection (reused), shaving barber and unhygienic sexual relation have been well known risk factors for HCV transmission^{4,5,12,20,21}. People who visit regularly for

any kind of dental procedure had more prevalence rate of HCV^{16,17,21,22} as compared to those who do not visit for any kind of dental procedure and we found this the case in our study. History of surgical operation was recorded as risk factor as seen in other studies.^{4,22,23} Similarly our finding of fatigue as a common symptom of HCV is consistent with earlier reports²⁴.

In conclusion, the seroprevalence of HCV in Mardan was 9% in general hospital patients. The significant risk factors was reused syringes, blood recipients, dental procedures and surgical operations. The common symptom in HCV positive patients was general weakness. As there is no vaccine available for HCV, the prevention of HCV infection can be achieved by blood screening for HCV before donation, avoiding sharing needles or any injecting equipment and following safe sexual practices.

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