

Original Research

Risk factors for HCV transmission

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ABSTRACT:

Background: Parenterally transmitted hepatotropic and lymphotropic RNA virus, Hepatitis C virus (HCV) is a member of the Flaviviridae family. The present study was conducted to assess risk factors for HCV transmission. **Materials & Methods:** 70 HCV positive patients of both genders were selected. Two patient groups—cases (group I) and controls (group II) were created. Patients who tested positive for HCV, as determined by HCV RNA quantification, were considered cases, whereas 70 subjects negative for HCV were control. To gather information on IV drug abuse, blood transfusions, socioeconomic factors, past history of hepatitis infection, social and sexual behavior, blood donation, hospital admissions, surgical interventions, occupational exposure, accidents/injuries, needle pricks, and tattooing, a standardized questionnaire was created. **Results:** Age group 21-40 years had 47 and 33, 41-60 years had 13 and 26 and 61-80 years had 10 and 11 subjects in group I and II respectively. The difference was non-significant ($P > 0.05$). Group I had patients who showed maximum positive number of tattooing, body piercing, use of barber/ manicureset, IV drug abuse, no. of injections in last 6 months, alcoholism, sharing razor, sharing toothbrush, needle prick injury, unsafe sexual practices, and circumcision, accident/ injury. The difference was significant ($P < 0.05$). **Conclusion:** A significant risk factors associated with HCV transmission were IV drug abuse, number of injections in past, sharing razor / toothbrush, needle prick injury, unsafe sexual practices, accident/ injury, tattooing, use of barber/ manicure set.

Keywords: HCV, needle prick injury, unsafe sexual practices

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INTRODUCTION

Parenterally transmitted hepatotropic and lymphotropic RNA virus, Hepatitis C virus (HCV) is a member of the Flaviviridae family. As the most common cause of liver-related morbidity and mortality at the moment, it represents a serious global public health emergency.¹ Because HCV symptoms are typically moderate and vague, most infected individuals are unaware that they have the virus. Only 25% of HCV-infected patients have spontaneous clearance of their infection and undetectable blood levels of HCV RNA.² The majority of instances (about 75%) involve the virus continuing to grow and creating a chronic infection that damages the liver gradually and may eventually result in a variety of diseases, including hepatocellular carcinoma, liver cirrhosis, and chronic hepatitis. It is discovered that roughly 20–30% of people with chronic HCV infection will develop cirrhosis over a period of 20 years.³

IV drug use, blood transfusions performed prior to 1992, unintentional needle punctures, hemodialysis,

and transplants performed prior to 1992 are common risk factors for the spread of the hepatitis C virus. Intranasal cocaine usage, body piercings, tattoos, sharing shaving supplies, sexual activity, deterioration of boxer's knuckles, and transfer from healthcare providers to patients are uncommon risk factors for transmission.⁴ Hepatitis is more likely to spread from patients to medical personnel when invasive procedures like cardiothoracic surgery or colonoscopy are performed.⁵ The present study was conducted to assess risk factors for HCV transmission.

MATERIALS & METHODS

The present study consisted of 70 HCV positive patients of both genders. All gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. Two patient groups—cases (group I) and controls (group II) were created. Patients who tested positive for HCV, as determined by HCV RNA quantification, were considered cases, whereas 70 subjects negative for HCV were control. To gather information on IV

drug abuse, blood transfusions, socioeconomic factors, past history of hepatitis infection, social and sexual behavior, blood donation, hospital admissions, surgical interventions, occupational exposure,

accidents/injuries, needle pricks, and tattooing, a standardized questionnaire was created. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Age groups (years)	Group I	Group II	P value
21-40	47	33	0.75
41-60	13	26	
61-80	10	11	

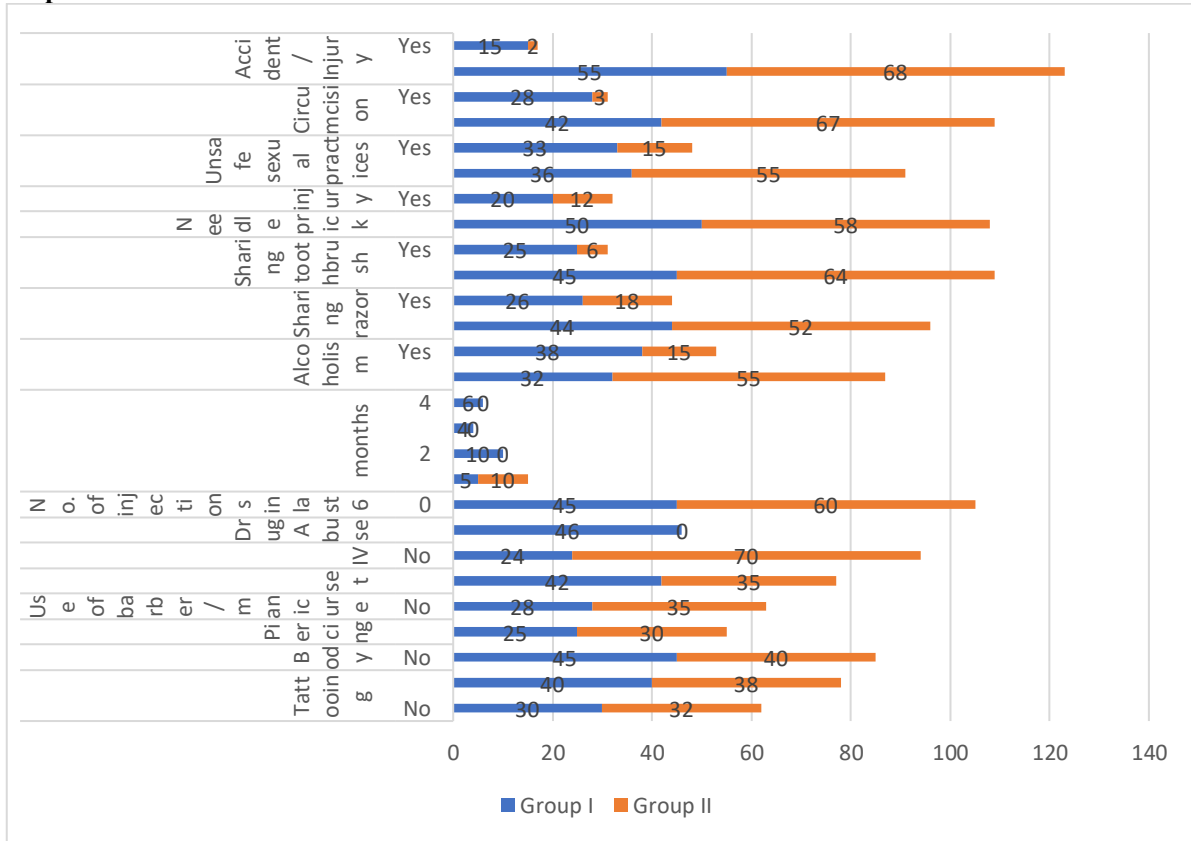
Table I shows that age group 21-40 years had 47 and 33, 41-60 years had 13 and 26 and 61-80 years had 10 and 11 subjects in group I and II respectively. The difference was non-significant ($P > 0.05$).

Table II Assessment of risk factors

Parameters	Variables	Group I	Group II	P value
Tattooing	No	30	32	0.94
	Yes	40	38	
Body Piercing	No	45	40	0.05
	Yes	25	30	
Use of barber/manicure set	No	28	35	0.03
	Yes	42	35	
IV Drug Abuse	No	24	70	0.02
	Yes	46	0	
No. of injections in last 6 months	0	45	60	0.01
	1	5	10	
	2	10	0	
	3	4	0	
	4	6	0	
Alcoholism	No	32	55	0.05
	Yes	38	15	
Sharing razor	No	44	52	0.04
	Yes	26	18	
Sharing toothbrush	No	45	64	0.03
	Yes	25	6	
Needle prick injury	No	50	58	0.02
	Yes	20	12	
Unsafe sexual practices	No	36	55	0.05
	Yes	33	15	
Circumcision	No	42	67	0.02
	Yes	28	3	
Accident/Injury	No	55	68	0.01
	Yes	15	2	

Table II, graph I shows that group I had patients who showed maximum positive number of tattooing, body piercing, use of barber/ manicureset, IV drug abuse, no. of injections in last 6months, alcoholism, sharing razor, sharing toothbrush, needle prickinjury, unsafe sexual practices, and circumcision, accident/ injury. The difference was significant ($P < 0.05$).

Graph I Assessment of risk factors



DISCUSSION

Hepatitis C virus (HCV) infection is a viral infection that primarily affects the liver.⁶ It is transmitted through contact with infected blood, most commonly through sharing needles or other equipment used to inject drugs, receiving contaminated blood transfusions or organ transplants before widespread screening of the blood supply began in 1992, and through unsafe injection practices in healthcare settings.⁷ Less commonly, HCV can also be transmitted through sexual contact with an infected person or from mother to baby during childbirth.⁸ Many people with HCV infection do not experience symptoms initially, or they may have mild, nonspecific symptoms that are often overlooked. However, chronic HCV infection can lead to serious liver complications over time, including liver cirrhosis (scarring), liver failure, and liver cancer.⁹ The present study was conducted to assess risk factors for HCV transmission.

We found that age group 21-40 years had 47 and 33, 41-60 years had 13 and 26 and 61-80 years had 10 and 11 subjects in group I and II respectively. Chang C et al¹⁰ found that IV drug abuse found to be another significant risk factor (p=0.001, OR= 7.920, 95%CI= 4.65-13.4) associated with HCV transmission. It was observed that there were 25 patients in case group and 16 patients in control group who had been injected 1-3 injections in past 6 months (IV drug abusers were not included) and there were 12 patients in case group and 4 patients in control group who had exposure to 4-8

injections in last 6 months. So, no. of injections use in last 6 months (other than IV drugs abuse) was found to be a significant risk factor (p<0.001, OR= 4.31, 95%CI = 2.42- 7.65) associated with HCV transmission. Alcoholism was not found to be a significant (p 0.044, OR =1.2, 95%CI= 0.83 – 1.74) risk factor for hepatitis C virus infection (p= >0.005). We observed that group I had patients who showed maximum positive number of tattooing, body piercing, use of barber/ manicure set, IV drug abuse, no. of injections in last 6 months, alcoholism, sharing razor, sharing toothbrush, needle pricking injury, unsafe sexual practices, and circumcision, accident/ injury. Wahab et al¹¹ in their study a total of 396 chronic HCV patients on follow-up treatment were evaluated retrospectively regarding the potential iatrogenic, community acquired and behavioral HCV risk factors. Risk factors for HCV transmission were found in all study populations. At least three identifiable risk factors were reported by each participant. Some behavioral and community-acquired exposures that entail several risky behaviors particularly, unsafe sexual practices were exclusively established among males. We report a significant decline in prevalence of HCV transmission through blood transfusion, parenteral treatment, hospitalization, surgery, non medicalized circumcision, Hijama done by informal practitioner, tattooing, folk body piercing and threading, sharing hygiene and sharp items, and the use of communal barber or manicure sets among younger age cluster.

The limitation of the study is the small sample size.

CONCLUSION

Authors found that significant risk factors associated with HCV transmission were IV drug abuse, number of injections in past, sharing razor / toothbrush, needle prick injury, unsafe sexual practices, accident/ injury, tattooing, use of barber/ manicure set.

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