Original Research

FACTORS ASSOCIATED WITH CHRONIC HEPATITIS–C VIRUS INFECTION IN A RURAL AREA OF THANJAVUR DISTRICT, STATE OF TAMILNADU,INDIA – ACROSS –SECTIONAL STUDY .

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ABSTRACT

Introduction: Viral hepatitis is a critical public health problem that can cause both acute and chronic liver disease in today's environment. Hepatitis C is a viral infection with a high global incidence and prevalence. HCV could be transmitted through blood. The most frequent serious disease in the world is HCV infection. According to the most recent estimates of disease burden, seroprevalence has increased to 2.8% during the previous 15 years, amounting to >185 million infections worldwide. **Methods:** A cross sectional study conducted in a rural field practice area of Thanjavur medical college to assess the prevalence of HCV and its associated factors. About 130 HCV cases were registered in the PHC of our rural field practice area. We included all the cases in that field practice area. **Results:** The study comprised 130 HCV patients, all of whom were males (aged 45±18.7 years), with ages ranging from 20 to 70 years. The majority (60%) were over 60 years old. The majority of the responders were between the ages of 60 and 70 years old. There were 97 (65%) males and 53 (35%) females among the 150 participants. In terms of where they lived, 44 (34%) were urban patients and 86 (66%) were rural patients. Factors that are related with chronic HCV are age, gender, residence, occupation, education, marital status, history of hospitalizations, drug addiction, travel abroad were found to be statistically significant. **Conclusion:** There were no significant differences in risk factors between control and HCV patients. HCV infection is just one of several obstacles that must be overcome in order to provide appropriate medical care to illness patients. The findings of this study show that sera from patients with alcoholic hepatitis interfere with the normal functioning of the liver; chronic alcoholism is the primary reason. Except for those who remain positive for HBsAg, hepatitis C virus infection has little effect on the development of chronic liver disease in heavy drinkers.

Keywords: Viral hepatitis; Chronic Hepatitis-C Virus; Risk factors, Statistical analysis

Introduction

Hepatitis C virus (HCV) infection is a leading cause of liver disease-related morbidity and mortality worldwide, and it is a major public health concern. Hepatitis caused by HCV has become a major increasing infectious disease problem, with an estimated 200 million people worldwide affected (Sievert et al., 2011). HCV is responsible for 20% of acute hepatitis, 70% of chronic hepatitis, 40% of end-stage cirrhosis, and 60% of hepatocellular cancer in developed countries. It has become one of the leading causes of liver transplantation (Benvegnu et al., 1997;). HCV is found in 0.2 to 2% of people all around the world (Narahari et al., 2009). Antibodies against the hepatitis C virus (HCV) are present in 1-.5% of the Indian population (Choudhry et al., 1995). Hepatitis C virus infection kills roughly two lakh people every year, with 3.8% of post-transfusion patients, 3% of acute viral hepatitis, 18% of chronic liver disease, and 20% of HCC patients infected (Narang A et al., 1995) . According to some workers, the prevalence of HCV-related chronic liver disorders ranges from 5-35%. Hepatitis C is one of the most common diseases in the world, with around 185 million people infected with the virus. Hepatitis C virus is the second most common cause of chronic disease and, as a result, the most common cause of liver cancer and liver transplantation (Perz JF et al., 2006). Hepatitis C virus (HCV) infection affects approximately 177 million people globally and is a leading cause of liver disease (Nguyen et al., 2007). HCV prevalence estimates in Southeast Asian countries range from 2.0% to 3.8% (Ratanasuwan et al., 2004 & Ishida T et al., 2022), 12.5% in patients with chronic liver disease (Pramoolsinsap C et al., 1992), and more than 90% in injecting drug users (Luksamijarulkul et al., 1996). Approximately 10% to 20% of chronic HCV infection cases will develop cirrhosis, with 1 percent to 5% progressing to hepatocellular carcinoma within 30 years of their initial infection, regardless of beginning place or risk factor.

HCV is transferred mostly through direct contact with contaminated human blood. Intravenous and percutaneous drug use, transfusion of blood products, haemodialysis, and unprotected intercourse with a couple of intercourse partners are all high-risk factors for HCV infection (Xia X et al., 2008). Blood transfusion used to be the main risk factor for acquiring HCV infection before routine anti-HCV screening of blood donors (Alavian et al., 2022; (Ambrozaitis A et al., 1995). In affluent nations, the risk has decreased significantly with the development of reliable assays for HCV screening in blood donors (Allain JP et .al.,1996). HCV infection is now most commonly caused by intravenous drug misuse has been identified as the most common viral infection affecting IV drug users (Aceijas C et al., 2007). IDUs represent the most vital corporations at risk of being infected with HCV (Aceijas C et al., 2007; Thakral B et al., 2006), the latter being recognized as the most common viral infection affecting IDUs, due to sharing contaminated needles and syringes, and various injection equipment, use of shooting galleries, cocaine use, unprotected sexual activities, and sharing shaving equipment. The HCV incidence rate in IDUs is varied in different parts of the world, however manipulating this virus in this high-risk group as a way in the health system can help prevent the infection from spreading to the general population(Stark K et al 1997; Alavian SM et al 2022).

Hepatitis C virus (HCV) is a widely recognized disease that causes significant morbidity and mortality Cooke GS et al., 2013). According to the most recent estimates of disease burden, seroprevalence has increased to 2.8% during the previous 15 years, equal to >185 million infections worldwide(Mohd Hanafiah et al 2013). According to WHO data, there are 188 million people worldwide who are infected with HCV, with around 18 million people in India being infected. In addition, India has around 12.5 million HCV carriers (Geneva 2017). In alcoholic patients, persistent HCV is linked to numerous morphological, epidemiological, physiological, biochemical, and immunological changes. Such data will undoubtedly be required as a foundation for any future programs developed for diagnosing and treating chronic HCV. This knowledge will also aid in acquiring a far better understanding of the etiology of chronic HCV, which will result in advancements in the format of pharmaceuticals of choice to prevent and treat this condition. The study's goals were to determine the prevalence of risk factors for chronic hepatitis-C virus infection in the community in and surrounding Thanjavur District, Tamil Nadu, India.

Methods

A cross-sectional study conducted in our rural field practice of Tanjore district. The research was conducted in Thanjavur, India, at the Department of Community Medicine, Government Medical College, Thanjavur District, and Tamil Nadu State. This research took place over six months, from September 2021 to March 2022. From the previous survey done in the PHC it had been found that there were about 130 HCV positive cases were found in out rural field practice area. After obtaining the informed consent, a semi structured questionnaire was applied to collect the information the various factors that may influence the HCV among the study participants. The study was conducted after obtaining the ethical committee approval. The data collected is entered in MS excel and statically analysis was done using the SPSS software.

RESULTS

The study comprised 130 HCV patients, all of whom were males (aged 45±18.7 years), with ages ranging from 20 to 70 years. The majority (60%) were over 60 years old. The majority of the responders were between the ages of 60 and 70 years old. There were 97 (65%) males and 53 (35%) females among the 150 participants. In terms of where they lived, 44 (34%) were urban patients and 86 (66%) were rural patients. Table 1 and Figures 1-3 illustrate the prevalence of HCV in relation to various parameters.

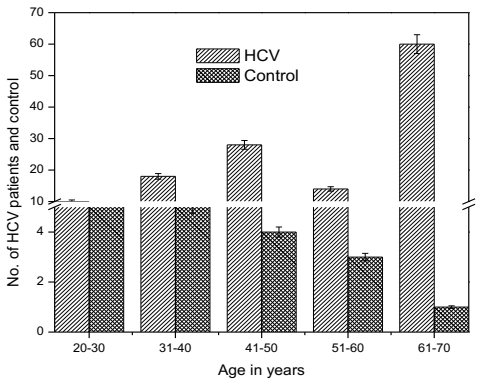
Table 1: Demographic factors associated with the prevalence of HCV patients and control

Parameters	**HCV patients (n=130)**		**'p' value**
	N	**%**	
Age in years			0.001
20-30	10	8	
31-40	18	14	
41-50	28	21	
51-60	14	11	
61-70	60	46	
Gender			0.001
Male	82	76	
Female	48	24	
Residence			<0.001
Rural	86	66	
Urban	44	34	
Education			0.000
High levels	58	45	
Low levels	72	55	
Marital status			0.001
Married	78	60	
Unmarried	52	40	
Economic status			0.09
Good	38	29	
Medium	22	17	
Low	70	54	
Smoking habit			0.05
Smoker	88	68	
Non smoker	42	32	
Alcohol intake			0.05
Daily drinkers	42	32	
Weekly drinkers	72	56	
Monthly drinkers	16	12	
History of surgery			0.135
YES	112	86	
NO	18	14	
History ofhospitalization			<0.001

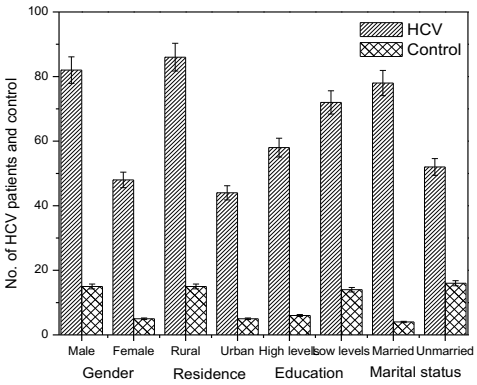
YES	96	74	
NO	34	26	
History of blood transfusion			0.326
YES	93	72	
NO	37	28	
Drug addiction			<0.001
YES	104	80	
NO	26	20	
Dental procedures			0.122
YES	36	28	
NO	94	72	
Traveling abroad			<0.001
YES	53	41	
NO	77	59	
Abnormal urine test			<0.001
YES	102	78	
NO	28	22	

*Level of significant at p<0.05 level of significant

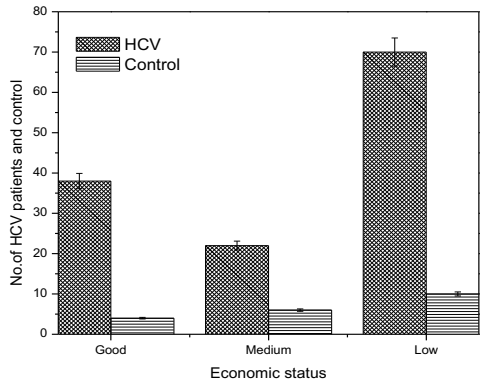
The distribution of HCV patients by residence is shown in Table 1. 86 of the 130 HCV patients live in rural areas, while 44 live in urban areas. Rural areas account for 15 of the 20 healthy persons, while urban areas account for 5. There are 58 individuals with a high level of education and 72 patients with a low level of education in the HCV patient population. Six of the twenty healthy people have a high education level, whereas 14 have a low education level. It illustrates the HCV patient distribution based on marital status. There are 78 married patients and 52 unmarried ones. 16 of the 20 healthy persons are married, and 4 are single.



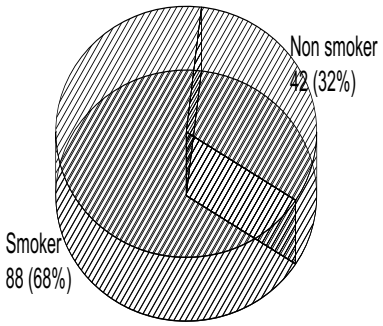
(a)



(b)



(c)



(d)

Figure 1: The distribution of HCV patients and Control based on parameters
(a) Age in years (b) Gender, Residence, Education, Marital status
(c) Economic status (d)Smoking habit

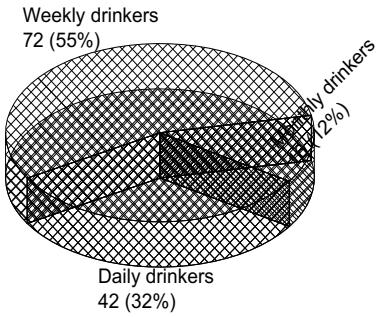


Figure 2: The distribution of HCV patients based on Alcohol intake

It shows the distribution of HCV patients according to their socioeconomic position. There are 38 Good patients, 22 Medium patients, and 70 Low patients out of 130 HCV patients. Out of 20 healthy persons, four have a good economic standing, six have a medium status, and ten have a low status. There are 98 smokers and 42 non-smokers among the patients. They show how HCV patients are distributed according to their socioeconomic status. There were 42 daily drinkers among the 130 HCV patients, 74 weekly drinkers, and 14 monthly drinkers. The findings are consistent with those of other studies [23-26].

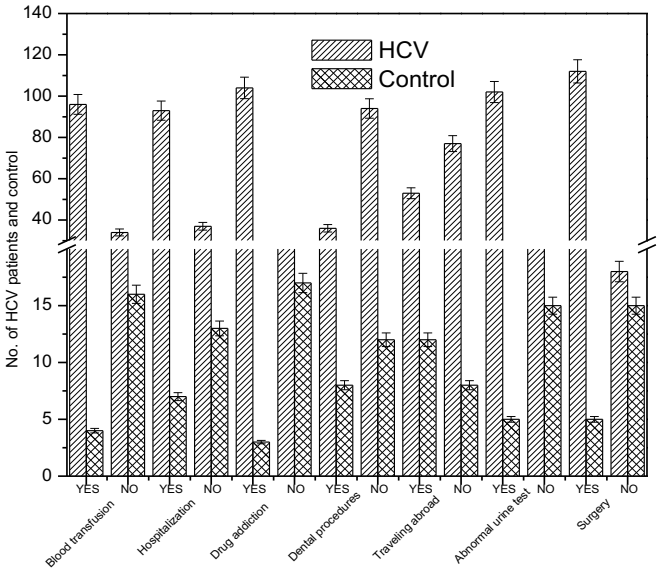


Figure 3: The distribution of HCV patients based on Risk factors

It observed that the HCV infection were higher in the age group of >60 (46%) and lower <20 (8%) which was statistically significant (30.5±41.72; p=0.001). The majority of the respondents (68 %) are female and less than half of the respondents are male (32 %). The rural HCV patients were (50.5±50.2; p=0.000) in higher than urban area (24.5±27.58; p=0.000) as compared with healthy people, which is further compared with the control values (Hoang DM et al 2003). Education status indicated a higher proportion of HCV patients with control (45% vs. 30%; 32±36.77; p = 0.000) and a lower proportion (55% vs. 70%; 43±41.01) were observed (Pham S et al., 1994). The married patients (41±52.33; p=0.001) were infected with HCV than unmarried (34±25.46; p=0.001) as associated with non-HBV infection patients. Good socioeconomic status of HCV patients with control (29% vs. 20%; 21±24.04; p = 0.09) and a lower status of (54% vs. 50%; 40±42.43) were presented. The value of 68% (88/130) smokers and 32% (42/130) non-smokers had HCV infection. Alcoholic's patients were at daily drinkers (32%) two times more than monthly drinkers (16%) getting risk of HCV infection (Espinosa M et al 2004). A p-value greater than 0.05 is considered statistically not significant between HCV patients and control. Studies of risk factor of HCV infection have been predominating when compared to the healthy people [30-33].

The statistical analysis was carried out using the SPSS 21.0 software tool. The average and standard deviations were calculated. Analysis of variance was used to examine the data (ANOVA). Statistical significance was defined as a probability level (p-value) of less than 0.05. All values were reported as means standard deviations. To examine the differences between one group (HCV patients) and another, the ANOVA test was used (Healthy people).

CONCLUSION

Among alcoholics, the prevalence of chronic HCV infection rises. Age, sex, education, occupation, place of living, and kind of housing were all collected from the study's findings, as well as HCV RNA, positive HBsAg, and anti-HBs antibody levels in any additional family members. The prevalence of HCV infection was discovered among the risk variables. There were no significant differences in risk factors between control and HCV patients. HCV infection is just one of several obstacles that must be overcome in order to provide appropriate medical care to illness patients. The findings of this study show that sera from patients with alcoholic hepatitis interfere with the normal functioning of the liver; chronic alcoholism is the primary reason. Except for those who remain positive for HBsAg, hepatitis C virus infection has little effect on the development of chronic liver disease in heavy drinkers. To summarize, inform public health planning, health service provision, the formulation of HCV policy guidelines, and the implementation of HCV programming to minimize HCV transmission and related disease.

Conflicts of Interest

The author declares no conflicts of interest.

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