

Original Research Article

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Seroprevalence of Anti HCV Antibodies in a Tertiary Care Hospital in Tumkuru, India

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ABSTRACT

Keywords

Hepatitis, HCV, Seroprevalence, anti HCV antibody, Tertiary care hospital.

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Hepatitis C virus is a hepatotropic virus and is the leading cause of cirrhosis and hepatocellular carcinoma. This retrospective study was conducted to determine the seroprevalence of anti HCV antibodies in a tertiary care hospital, Tumkuru, India. A total of 2093 serum samples were tested for detection of anti HCV antibodies using commercially available kit during a period from April 2015-March 2016. Anti HCV reactivity was highest in the age group 51-60(45.45%) and more significant in females (54.54%). Most cases were detected during routine screening of patients before surgery. The seroprevalence rate was 0.52 in the present study. Stringent measures like screening of blood samples for HCV infection need to be adapted to prevent transmission of Hepatitis C.

Introduction

Hepatitis is a disorder involving the inflammation of liver that may progress to hepatic cell necrosis leading to fibrosis. This in turn may result into serious clinical, biochemical and histological changes. Also viral hepatitis is a cause of considerable illness and death in human population both from acute infection and chronic sequelae (Prakash *et al.*, 2011). Hepatitis C virus is one of the etiological agent of viral hepatitis. Hepatitis C is an emerging infectious disease all over the world especially in the developing countries. With approximately 170 million people worldwide estimated to

be infected with HCV, a figure that is 4 times the HIV infection status (Naik *et al.*, 2012). HCV is a single stranded positive sense RNA virus, 9.6kb in length & belongs to family Flaviviridae and genus Hepacivirus. There are about 180 million carriers & approximately 4 million people annually are newly infected (Soin *et al.*, 2015).

Hepatitis C virus impacts global health system to a large extent being responsible for significant morbidity and mortality as HCV can lead to chronic liver disease

causing cirrhosis, hepatocellular carcinoma and end stage liver disease among 5-20% of infected patients (Chakraborty *et al.*, 2015). The present study was conducted to determine the seroprevalence of anti HCV antibody among patients in Shridevi Institute of Medical sciences and Research Hospital, Tumkuru, India.

Materials and Methods

This is a retrospective study. This study was conducted in the serology lab, department of microbiology, Shridevi Institute of Medical Sciences and Research Hospital which is a tertiary care hospital located at Tumkuru, India. A total of 2093 patients who were admitted or attending OPD in our hospital were tested for Hepatitis C infection during the period from April 2015 to March 2016.

All serum samples were tested for antibodies to HCV using 4th generation HCV TRIDOT (Diagnostic enterprises), utilizes a unique combination of modified HCV antigens from the putative core, NS3, NS4 & NS5 regions of the virus to selectively identify all subtypes of Hepatitis C virus with 100 % specificity and 100% sensitivity. The kits were used in accordance with the manufacturer instructions. Data were analyzed with Microsoft excel.

Results and Discussion

A total of 2093 serum samples were tested for detection of anti HCV antibodies. Of the 2093 serum samples, 11 were reactive for anti HCV antibodies. The prevalence of anti HCV antibody was 0.52%. The highest prevalence of anti HCV antibodies was observed in the age group of 51-60yrs 05(45.45%) followed by 31-40 age group 03 (27.27%) and then in the age group 11-30yrs 1(9.09%) (Table 1). Out of the 11 HCV

reactive patients 05(45.45%) were males and 06 (54.54%) were females (Table 2). Maximum anti HCV reactivity was observed in surgery and allied department 07 (63.63%) and then in Medicine and allied department 2(18.18%)(Table 3)

Hepatitis C virus (HCV), a global health problem and is also prevalent in India (Jindal *et al.*, 2006). The worrying aspect of acute hepatitis C infection is that spontaneous viral clearance is unusual with nearly 54-86% of the infected individuals progressing to chronic hepatitis (Reker *et al.*, 2014).

Increasing trend of anti HCV seropositivity with advancing age was observed in the present study. The highest prevalence of anti HCV antibodies was observed in the age group of 51- 60yrs (45.45%). The late positivity of anti HCV may be due to exposure to its risk factor at later Stage (Khatak *et al.*, 2002). Several studies reported seroprevalence of HCV was more in male patients than in female patients (Soin D *et al.*, 2015). But in this study, was more in female patients (54.54%).

The transmission of HCV occurs primarily through exposure to infected blood which may be due to blood transfusion, organ transplantation, intravenous drug use, body piercing, tattoo in, haemodialysis and occupational exposure among healthcare worker, therapeutic injections, major/minor surgeries, dental treatment, shaving at barber shop, unprotected sexual contact and vertical transmission (Makroo *et al.*, 2013) (Soin *et al.*, 2015). Among 11 HCV reactive cases, one HCV reactive patient had a history of blood transfusion and other had cirrhosis. Two HCV reactive patients were admitted for viral fever.

Table.1 Age Distribution of Hepatitis C infection Among Patients in a Tertiary Care Hospital

Age(Yrs)	No. of Pts Screened	%	No. of HCV Reactive Patients	%
1-10	111	5.30	0	0
11-20	155	7.40	1	9.09
21-30	418	19.97	1	9.09
31-40	403	19.25	3	27.27
41-50	351	16.77	0	0
51-60	286	13.66	5	45.45
>60	369	17.63	1	09.09
Total	2093		11	

Table.2 Sex Distribution of Hepatitis C infection Among Patients in a Tertiary Care Hospital

Sex	No. of Pts Screened	%	No. of HCV Reactive Patients	%
Male	1312	62.68	05	45.45
Female	781	37.31	06	54.54
Total	2093		11	

Table.3 Prevalence of Anti HCV Antibodias Among Different Department in a Tertiary Care Hospital

Department	No. of Pts Screened	%	No. of HCV Reactive Patients	%
Medicine & Allied	300	14.33	02	18.18
Surgery & Allied	1030	49.21	07	63.63
OBG	126	6.02	0	0
Ortho	495	23.65	01	9.09
Causality	68	3.24	01	9.09
Pediatrics	64	3.05	0	0
Mental Health	10	0.47	0	0

Rest of the HCV reactive cases were detected during preoperative screening of patients. Hence our study recommends screening of patients for HCV infection before surgery to reduce the risk of transmission. Global and region specific estimates of HCV prevalence vary greatly (Reker *et al.*, 2014).

About 0.04 to 26% of apparently healthy population in different countries of the world is suffering from chronic HCV infection. Prevalence 2.5% in SEAR

countries (Prakash *et al.*, 2011). A recent study in rural Cambodia reports high prevalence rate of HCV antibodies (14.7%) (Viet *et al.*, 2012). Similar studies from other countries demonstrated that prevalence of HCV was 18.2% Korea between 2005 and 2006. Prevalence of anti HCV antibody positivity in Pakistan was found 4.8% in 11 year surveillance study performed in 47043 patients. In Turkey, prevalence of anti HCV antibody positivity is 1-2.4% (Turangolu *et al.*, 2013).

The seroprevalence of HCV in the general population has been studied extensively and reports from different parts of India show the seroprevalence of HCV infection to be as varied as 0.3-11.3% (Jindal *et al.*, 2006). In India prevalence studies done in Arunachal Pradesh showed a higher rate of 7.89% as compared to Maharashtra (0.09%), Andrapradesh (1.4%) and West Bengal (0.71%) (Naik *et al.*, 2012). In a recent study done in Hisar, Haryana the seroprevalence of anti HCV antibody was calculated to be 1%. A study done in Orissa reported anti HCV seroprevalence to be 1.98 % (Makroo *et al.*, 2013). In the present study, the overall prevalence of anti HCV antibody in Shridevi Institute of Medical Sciences and Research Hospital, Tumkuru was found to be 0.52%.

Our study has certain limitations. First, HCV infection was based on detection of by antibodies rather than detection of HCV RNA. The antibody may never become detectable in 5-10% patients with acute hepatitis C and levels of anti HCV may become undetectable often recovery (albeit rare) from acute hepatitis C. In patients with chronic hepatitis C, anti HCV is detectable in 95% of cases (Chakraborty *et al.*, 2015). Second, this study was conducted in only one hospital, so cannot be directly generalized to the entire population.

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