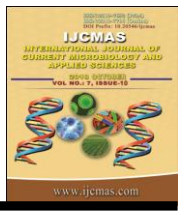
Int.J.Curr.Microbiol.App.Sci (2018) *7*(10): 1312-1320

International Journal of Current Microbiology and Applied Sciences
***ISSN: 2319-7706* Volume 7 Number 10 (2018)**
Journal homepage: http://www.ijcmas.com



Original Research Article https://doi.org/10.20546/ijcmas.2018.710.147

Prevalence of HCV Antibodies in Chronic Liver Disease Patients in Tertiary Care Hospital

Aliya Fatima* and K. Nagamani

Department of Microbiology, Gandhi Medical College & Hospital, Secunderabad, Telangana, India

**Corresponding author*

Keywords

CLD, HCV

Article Info

Accepted:
10 September 2018
Available Online:
10 October 2018

A B S T R A C T

Viral infections account for significant proportion of CLD. Hepatitis C virus is the major cause of non-A, non-B hepatitis worldwide. HCV can lead to chronic liver disease causing cirrhosis, hepatocellular carcinoma and end stage liver disease among 5-20% of infected persons. In India about 20 million people are known to have HCV infection and a quarter of them are expected to develop chronic liver disease in the next 10-15 years. 1) To determine prevalence of Hepatitis C virus infection in chronic liver disease patients. 2) To identify the risk factor for HCV infection. A total of 100 Cases of CLD attending Gastroenterology department were included in the study during the period of January 2015 – June 2016. Demographic data and clinical findings were recorded using a structured proforma. All the samples were screened for anti HCV antibodies by ELISA (HCV MICROLISA) according to the kit manufacturer's instructions. Out of 100 CLD Patients, 81(81%) were Males and 19(19%) were Females. HCV antibodies were found positive in 4 cases. Out of 4 cases, 3 were Males and 1 was Female. Prevalence of HCV in CLD Patients was 4%. The major risk factor for HCV Infection was Surgery.

Introduction

Chronic liver disease (CLD) is a disease of the liver resulting from an inflammation due to infiltrative, immunological, mechanical or metabolic injury to the liver, which has persisted for six or more months without complete resolution (Laraba *et al.*, 2009)

Viral infections account for significant proportion of CLD. Hepatitis B and Hepatitis C viruses account for 75% of all cases of liver disease around the world (Nirmala Poddar *et al.*, 2012). WHO estimates 170-200 million people are chronically infected with HCV worldwide (Hanaa Ali Naem and Hassan J. Hasony, 2015). HCV can lead to chronic liver disease causing cirrhosis, hepatocellular carcinoma and end stage liver disease among 5-20% of infected persons (Nirmala Poddar *et al.*, 2012). In India about 20 million people are known to have HCV infection and a quarter of them expected to develop chronic liver disease in the next 10-15 years. The impact of this infection has started to emerge in India (Ramya and Madhuri Kulkarni, 2015). It is the major cause of non-A, non-B hepatitis (Vardas *et al.*, 1999).

HCV is a small, spherical, enveloped RNA virus that encloses a long, single-stranded, positive sense genomic RNA with an icosahedral capsid.

The prevalence of chronic HCV ranges from 0.1% to 5% in different countries (Laraba *et al.,* 2009).

HCV seroprevalence reported in South India is 0.22%, 0.3% in Western India, 1.8% in Central India and 1.9% in North India (Ramya and Madhuri Kulkarni, 2015) (Table 1).

HCV is transmitted primarily through blood or blood products or contact with infected tissue (blood transfusion, intravenous immunoglobulins, intravenous drug abuse and tissue transplantation).

Others route of HCV transmission have also been implicated like sexual, vertical and household contacts (Vardas *et al.,* 1999)

No effective vaccine has been developed to prevent HCV infection (Yao *et al.,* 2005). The high genomic heterogeneity of HCV may contribute to viral immune evasion, promote chronicity and may influence the outcome of interferon α therapy in HCV- infected individuals (Yao *et al.,* 2005). The genome of HCV is highly mutable.

The mutation occurs in hyper variable region of the genome coding for the envelope proteins and escapes immunity by the host and at the same time knocks host's innate immunity resulting in HCV chronic infection

Materials and Methods

Study design: Cross-sectional Descriptive study

Study period: 18 months (January 2015 –June 2016)

Inclusion criteria

The Chronic liver disease patients of all age groups and both the sexes attending Gastroenterology unit in Gandhi Hospital.

Exclusion criteria

Chronic liver disease secondary to metabolic diseases.

Sample size: 100

Sample collection

Approval of Institution ethical committee was obtained to carry out the study. Patients were enrolled in the study after obtaining consent epidemiological and clinical data was recorded using a structured proforma.

About 2ml of blood was collected under aseptic conditions. All the samples were screened for anti-HCV antibodies using third generation ELISA. The procedure was strictly followed according to the kit manufacturer's instructions. Test specimens with absorbance value less than the cut-off are considered non-reactive for anti-HCV. Test specimens with absorbance value greater than or equal to the cut-off value are considered reactive for Anti-HCV antibodies.

Results and Discussion

100 Patients with chronic liver disease admitted in Gastroenterology unit of Gandhi Hospital were included in the study.

Males 81 and Females 19 (Fig. 1)

Male to Female ratio of the total chronic liver disease patients 4.2:1

In present study, most of the cases belong to the age group 41-50 years (Table 3, Fig. 2).

In Present study, Out of 4 HCV positive cases, 3 were males and 1 was Female (Fig. 3).

Most of the HCV positive cases belong to 40-60 Yrs of age group (Fig. 4).

In Present Study, Surgery is a major risk factor for HCV infection in Chronic liver disease cases. In Present study, Prevalence of Hepatitis C in Chronic liver disease patients was 4% similar to reports from India by (Arora *et al.*, 2005), (Sanjay Sharma *et al.*, 2016).

In Present study, Males (75%) were more commonly affected than females (25%)

Similar observations were made by several authors from India and Pakistan as shown in Table 2.

Fig.1 Gender wise distribution of chronic liver disease cases included in the study

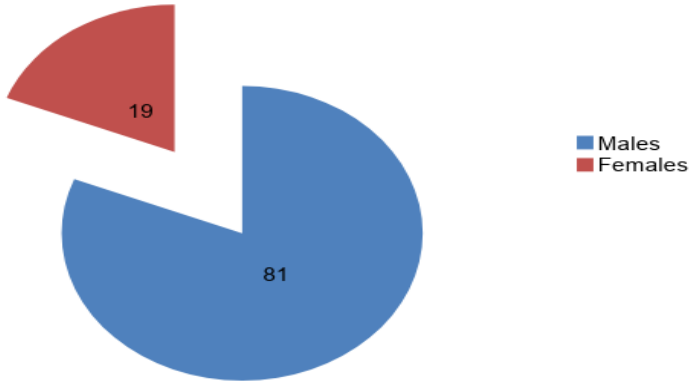


Fig.2 Age and sex wise distribution (n= 100) Patients included in the study

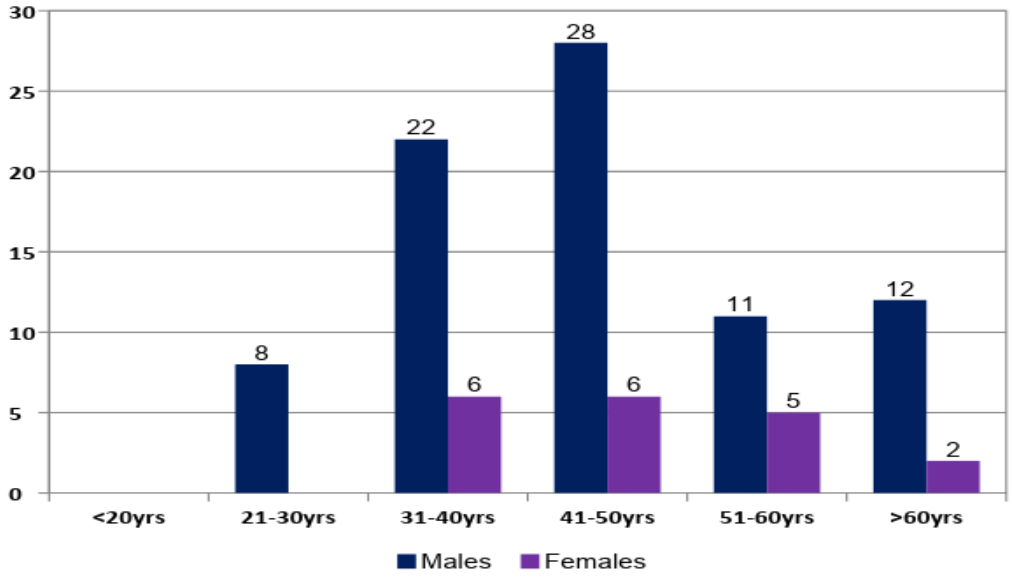


Fig.3 Comparison of HCV positive and negative patients in chronic liver disease with regard to gender

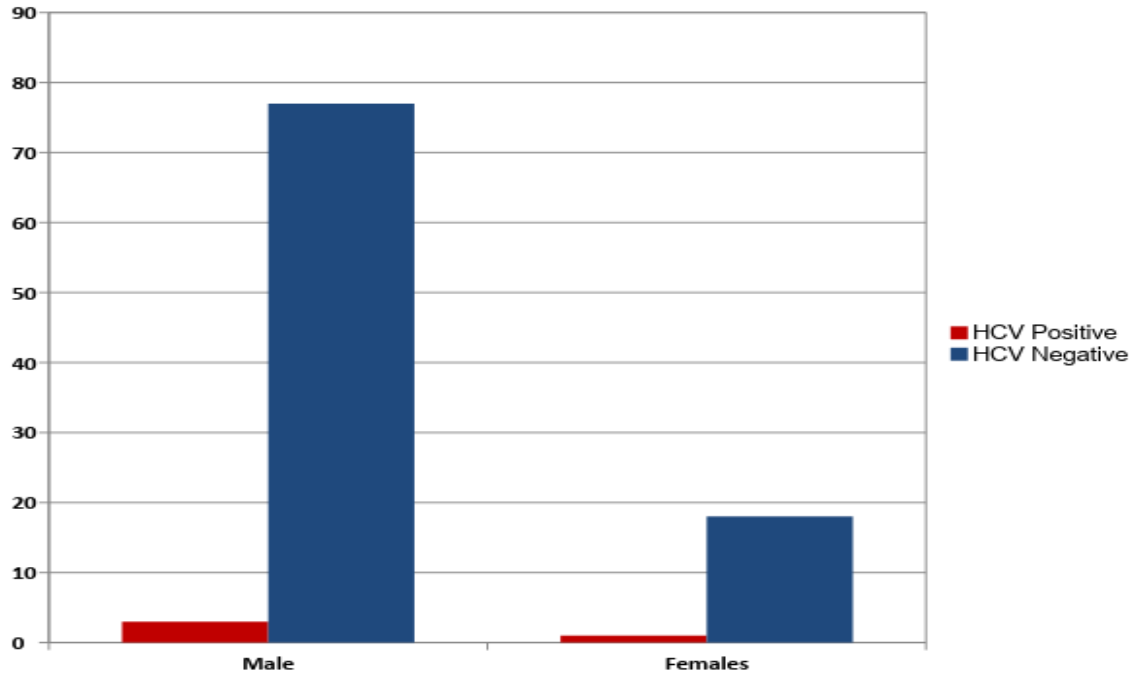


Fig.4 Prevalence of HCV in different age groups

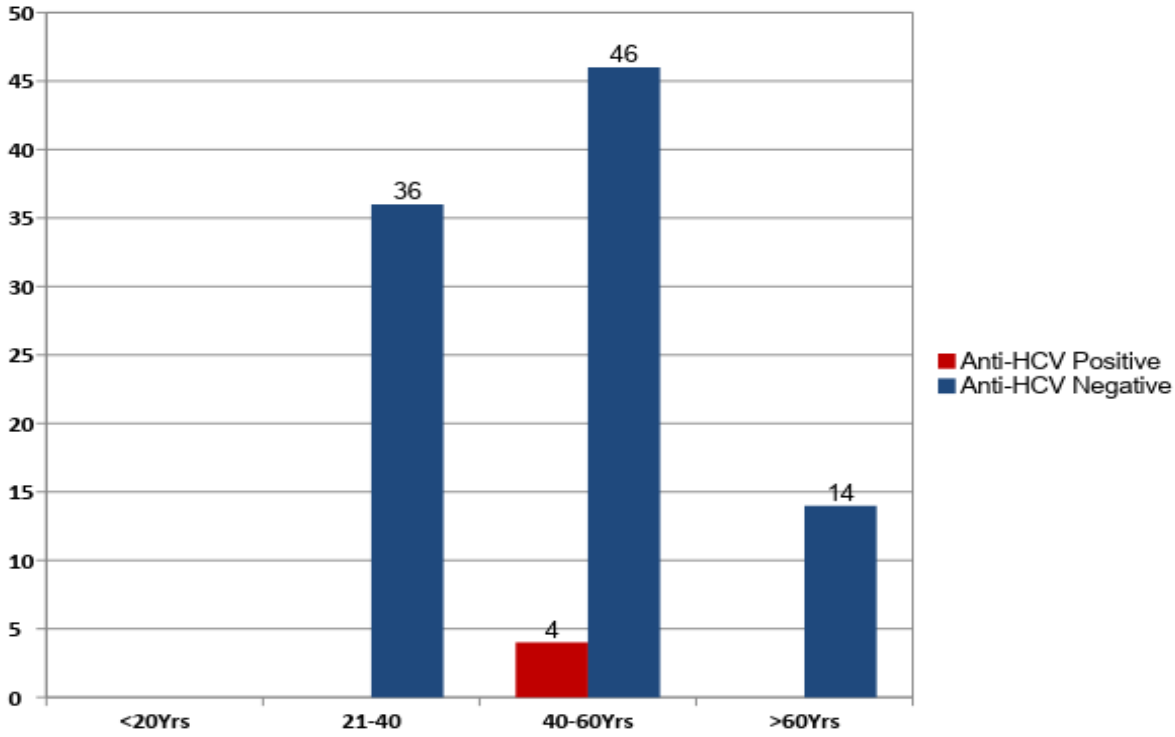


Fig.5 Risk factors among HCV Positive and HCV negative cases

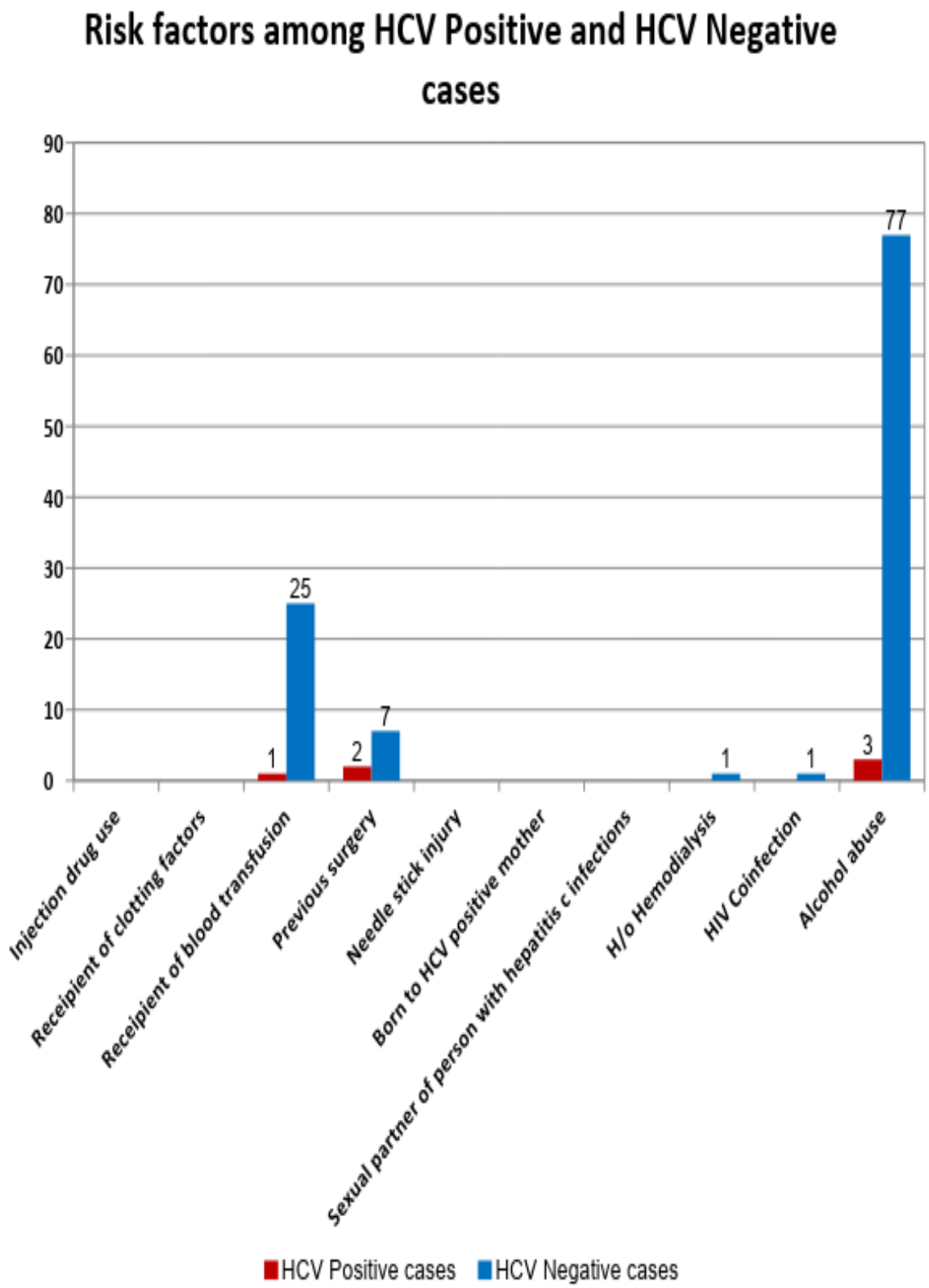


Table.1 Prevalence of hepatitis c in chronic liver disease

S. No	Author	Place	Year	Prevalence
1.	Chen *et al.,*	Taiwan	1990	43%
2.	Colombo *et al.,*	Italy	1991	74%
3.	Tandon *et al.,*	North India	1991	42%
4.	Amarapurkar *et al.,*	Bombay	1992	15-20%
5.	Khuroo *et al.,*	Kashmir	1993	26%
6.	Sumathy *et al.,*	South India	1993	23.9%
7	Sarin *et al.,*	North India	1996	10.8%
8	Chatterjee *et al.,*	Calcutta	2001	8.06%
9	Arora *et al.,*	India(Haryana)	2005	4.28%
10	A.Laraba *et al.,*	Nigeria	2009	14.4%
11	Abel Girma Ayele *et al.,*	Ethiopia	2013	22.5%
12	Sanjay Sharma *et al.,*	India (Farrukhabad)	2014	4%
13	Pragati Chigurupati *et al.,*	Eluru	2014	23.5%
14	Senevirathna *et al.,*	Sri lanka	2015	11.33%
15.	Present Study	Telangana	2016	4%

Table.2 Gender wise distribution of HCV cases

S. No	Author	Year	Place	Percentage
1.	Masroor A.Qazi *et al.,*	2006	Pakistan	Male- 58.2% Female- 42.8%
3.	Abel Girma Ayele *et al.,*	2012	Ethiopia	Male- 18.4% Female- 29.5%
4.	Subramanian vennila *et al.,*	2013	Tamilnadu	Male-59.6% Female- 40.4%
6	Sanjay Sharma *et al.,*	2014	Uttar Pradesh	Male- 65% Female- 35%
7	Present Study	2016	Telangana	Males- 75% Females-25%

Table.3 Age wise distribution of HCV cases

S. No	Author	Place	Year	Prevalence
1.	Masroor A.Qazi *et al.,*	Pakistan	2006	18-29yrs (26.5%) 30-39yrs (35.7%) 40-75yrs (37.8%)
2.	Abel Girma Ayele *et al.,*	Ethiopia	2012	<50yrs
3.	B.Vallab Ganesh Bharadwaj *et al.,*	South India	2014	41-60yrs
4.	Sajid Raza *et al.,*	Bannu	2014	23-36yrs (5.55%) 15-17yrs (2.7%)
5.	Sanjay Sharma *et al.,*	Uttarpradesh	2014	60-70yrs (7.2%) 50-60yrs (6.3%) 30-40yrs (5.9%)
6	Parveen Malhotra *et al.,*	New Hub-Haryana	2015	20-35yrs (38%)
7	Present Study	Telangana	2016	40-60Yrs

Table.4 Risk factors for HCV

S. No	Author	Place	Year	Percentage
1.	D.N. Amarapurkar *et al.,*	Bombay	1992	38% - Blood transfusion
2.	Beatriz Maria Garcia Montalvo *et al.,* [10]	Mexico	2008	Surgery- 53.7% Blood transfusion-38.9%
3.	Harmeet S. Rehan *et al.,*	North India	2011	43.1% Mutiple injection exposure
4.	Anita Chakrtavarti *et al.,*	New Delhi	2011	Surgery- 26.76% Blood transfusion-21.12%
5	Gupta Sonia *et al.,*	Ludhiana	2015	1.45% Blood Donors
6	Present Study	Telangana	2016	Surgery - 50%

Table.5 HCV antibody detection

S. No	Author	Place	Year	Prevalence
1.	Chatterjee *et al.,*	Calcutta	2001	8.06%
2.	A Laraba *et al.,*	Nigeria	2009	14.4%
3.	Sanjay Sharma *et al.,*	Uttarpradesh	2014	4%
4.	D.B.Senevirathna *et al.,*	Srilanka	2015	11.33%
5.	Present study	Telangana	2016	4%

In Present study, most common age group affected with HCV was 40-60Yrs similar to study from South India by (Vallab Ganesh Bharadwaj *et al.,* 2014) who reported 41-60Yrs as commonly affected age group.

In Present study, surgery (50%) was the major risk factors for HCV similar to a study from Mexico by Beatriz Maria Garcia *et al.*, who reported that acquisition of HCV after Surgery was 53.7% (Table 4 and Fig. 5).

In Present study, HCV antibody was detected by ELISA in 4% of Chronic liver di sease cases correlating with a study from Uttarpradesh by (Sanjay Sharma *et al.,* 2016) (Table 5).

In Present study, Prevalence of Hepatitis C in chronic liver disease cases was 4%.

Prevalence of Hepatitis C was 75% among Males and 25% among females

Hepatitis C infection was common in 40-60 Yrs of age group

The major risk factor associated with Hepatitis C infection among chronic liver disease patients was Surgery.

Acknowledgement

Authors are grateful to Manisha from Gandhi Hospital for her help and cooperation for the present investigation.

References

Arora, D. R., R. Sehgal, N. Gupta, A. Yadav, N. Mishra, S. B. Siwach. Prevalence of parenterally transmitted hepatitis viruses in clinically diagnosed cases of hepatitis, Indian j med microbiol. 2005 Jan; 23(1): 44–47

Beatriz María García-Montalvo; Pedro Luis Galguera-Colorado. Distribution of hepatitis C virus genotypes, risk factors and liver disease in patients from Yucatán, México. Annals of Hepatology 2008, 7(4): October –December: 345-349.

Hanaa Ali Naem, and Prof. Hassan J. Hasony. Comparative study for various HCV Diagnostic methods used in Basrah health institutions International Journal of Scientific & Engineering Research, Sept 2015; Volume 6, Issue 9.

Laraba, A, G Wadzali, B Sunday, O Abdulfatai, S Fatai. *Hepatitis C virus infection in Nigerians with chronic liver disease*. The Internet Journal of Gastroenterology, 2009; Vol 9 Number 1.

Nirmala Poddar, Priya Ranjan Lenka, Nirupama Chayani, Sunil Mohanty, Bandana Mallick, Dipti Pattnaik. Seroprevalence of Hepatitis-C virus in blood donors and high risk individuals. journal of evolution of medical and dental sciences, Dec 2012; Vol 1, Issue 6.

Ramya S R, and Dr. Madhuri Kulkarni. Hepatitis C Virus- Epidemiology and Genotyping. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS).Volume 14, Issue 3 Ver. VIII (Mar. 2015), PP 29-34

Sanjay Sharma, Anil kumar Sharma, R. Sujatha and Asish Bansal. Risk factors of Hepatitis C infection in patients of chronic liver disease in a rural area of Uttar Pradesh. Indian J.Sci.Res. 7(1):193-196, 2016

Vallab Ganesh Bharadwaj, B., G. Vazhavandal, A. Uma and P. Chitra Rajalakshmi. Seroprevalence of Hepatitis C Virus Infection among Patients attending a rural teaching hospital in South India: A Three Year

Study. Int.J.Curr.Microbiol.App.Sci (2014) 3(2): 123-127

Vardas E, Sitas F, Seidel K, Casteling A, Sim J. Prevalence of hepatitis C virus antibodies and genotypes in asymptomatic, first-time blood donors in Namibia. *Bulletin of the World Health Organization*. 1999; 77(12):965-972.

Yao, Ermei, John E Tavis, and the Virahep-C Study Group. "A General Method for Nested RT-PCR Amplification and Sequencing the Complete HCV Genotype 1 Open Reading Frame." *Virology Journal* 2 (2005): 88.

How to cite this article:

Aliya Fatima and Nagamani, K. 2018. Prevalence of HCV Antibodies in Chronic Liver Disease Patients in Tertiary Care Hospital. *Int.J.Curr.Microbiol.App.Sci.* 7(10): 1312-1320.
doi: https://doi.org/10.20546/ijcmas.2018.710.147