



## RESEARCH ARTICLE

## Detection the Infections with Viral Hepatitis C in Suwayrah / Wasit Governorate/ Iraq

**Humam Kasem Hussein**

*College of Health and Medical Techniques/Kufa, Al-Furat Al-Awsat Technical University, 31003 Al-Kufa, Iraq.*

### Abstract

Background: Hepatitis C virus (HCV) is worldwide distributed virus which may lead to the death, its responsible for 15-20% of acute hepatitis. Then, most of these cases will progress to chronic infection. IL-8 considered as a good indicator of liver disorder such as liver carcinoma, which is one of the main complication of infection with HCV. Objective: This study was carried out to detect infection of HCV and its association with serum level of IL-8 by ELISA kits. Materials and methods: Blood specimens were collected from suspected persons who visited Suwayrah General Hospital during the period from March 2018 to September 2018. Blood specimens (5 ml) were taken from them under aseptic conditions and left for 10 minutes for spontaneous clotting at room temperature before being centrifuged (6000 rpm) to separate the serum. Serum samples were kept frozen at  $-20^{\circ}\text{C}$  for determination of HCV Abs and IL-8 levels. Results: The results showed that, this virus was detected in 14 male (58.3%) and in 10 female (41.7%). Most age period susceptible to HCV was 21-40 years 14 (58.3%). Level of IL-8 in HCV patients was  $(210 \pm 2.422 \text{ pg/ml})$  which significantly high ( $p < 0.05$ ) than healthy persons was  $(48 \pm 3.241 \text{ pg/ml})$ . Conclusions: Absence of prophylactic procedures especially vaccination make HCV highly infectious and fatal disease. Both genders are under attack of HCV infection. Age period of the individuals associated with the resistance to gain this virus. IL-8 is a good indicator to liver disease such as HCV.

**Keywords:** *Hepatitis C virus; Hepatic inflammation; Liver cirrhosis; Hepatocellular cancer and IL-8.*

### Introduction

Hepatitis C virus (HCV) is a small (55-65 nm in diameter), enveloped virus with positive single stranded RNA genome, belonging to genus *Hepacivirus* and *Flaviviridae* family [1]. Worldwide distribution is the dominant feature of HCV, infection with this virus may lead to the death [2]. Hepatitis C virus (HCV) is responsible for 15-20% cases of acute hepatitis, which followed with chronic infection in most of these cases [3].

Many complications, is related to chronic HCV infection such as liver cirrhosis, hepatic carcinoma, liver failure and death [4]. Every year, about 350000-500000 persons die as a result of HCV chronic infection life-threatening complications [5].

In addition, the dominant reason of the death in HIV-positive patients is HCV. Although the declining in HCV occurrence in developed countries, mortality rate rise by reason of liver disease secondary to this virus infection [6].

Infection with HCV may acquire via several routes such as Blood transfusion, surgery, injection, sexual contact and tattoo [7]. Among these routes of transmission, exposure to infected blood and its products considered the major route while the sexual contact thought to be the less common than the others [8]. In Asia and Africa, HCV is more prevalent than North America, northern and Western Europe, and Australia [9].

Many extra hepatic factors were related to the epidemiology of HCV including diabetes mellitus type 2, glomerulopathies and oral manifestations [10]. Interleukin 8 (IL-8) is a pro-inflammatory cytokine play an important role in inflammation process. Macrophages, epithelial and endothelial cells produce this interleukin [11].

IL-8 encourages chemo taxis of neutrophils and other granulocytes followed by their migration to the site of infection, also

stimulates the ability of phagocytosis of these cells [12].

IL-8 considered as a good indicator of liver disorder such as liver carcinoma which is one of the main complication of infection with HCV [13]. In this study, the aim is detection the infection of HCV and its association with serum level of IL-8.

## Materials and Methods

### Patients

This study has been done in patients who checked in Suwayrah General Hospital during the period from March 2018 to September 2018. Those patients suffered from fever, general body weakness, abnormalities in urine and yellowish eyes and skin.

### Blood Samples

Blood specimens (5 ml) were taken from them under aseptic situations, and then left for 10 minutes for spontaneous clotting at room

temperature before being centrifuged (6000 rpm) to obtain the sera [14].

### ELISA Kits

Detection of hepatitis C was done by hepatitis C-Ab ELISA kit (Abnova/Taiwan) ELISA kit. Level of IL-8 in those patients was measured via correlation of its level in same numbers samples from healthy persons via human IL-8 ELISA kit (Invitrogen/Austria). Both kits were performed following the manufacturer's guidelines.

### Statistical Analysis

The Statistical analysis of the current study was executed by SPSS program version 20.

### Results

The distribution of the HCV patients according to the age in the presented study was as the following: aborted women were >1 year 1(4.2%), 1-20 years 2(8.3%), 21-40 years 14 (58.3%), 41-60 years 6(25%) and >60 years 1 (4.2%) (Figure 1).

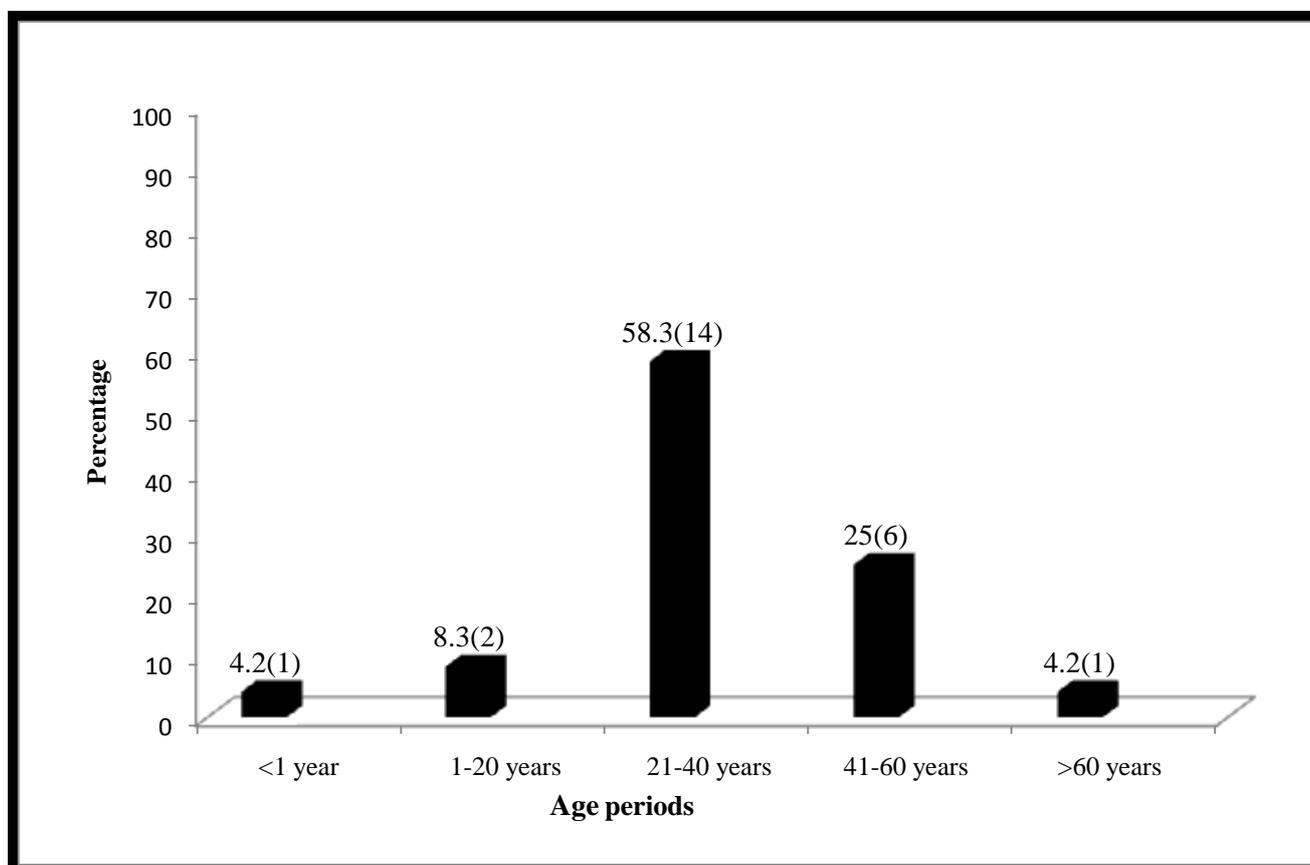


Figure 1: Distribution of HCV patients according to age groups

The distribution of the HCV patients according to the gender in the presented study was male 14 (58.3%) and female 10 (41.7%) as shown in Figure 2. Measurement IL-8 level in patients with HCV in the presented study was performed by comparing

it with that of same numbers of healthy persons as control group. Level of IL-8 in HCV patients was (210±2.422 pg/ml) which significantly high ( $p < 0.05$ ) than healthy persons was (48±3.241 pg/ml) (Figure 4).

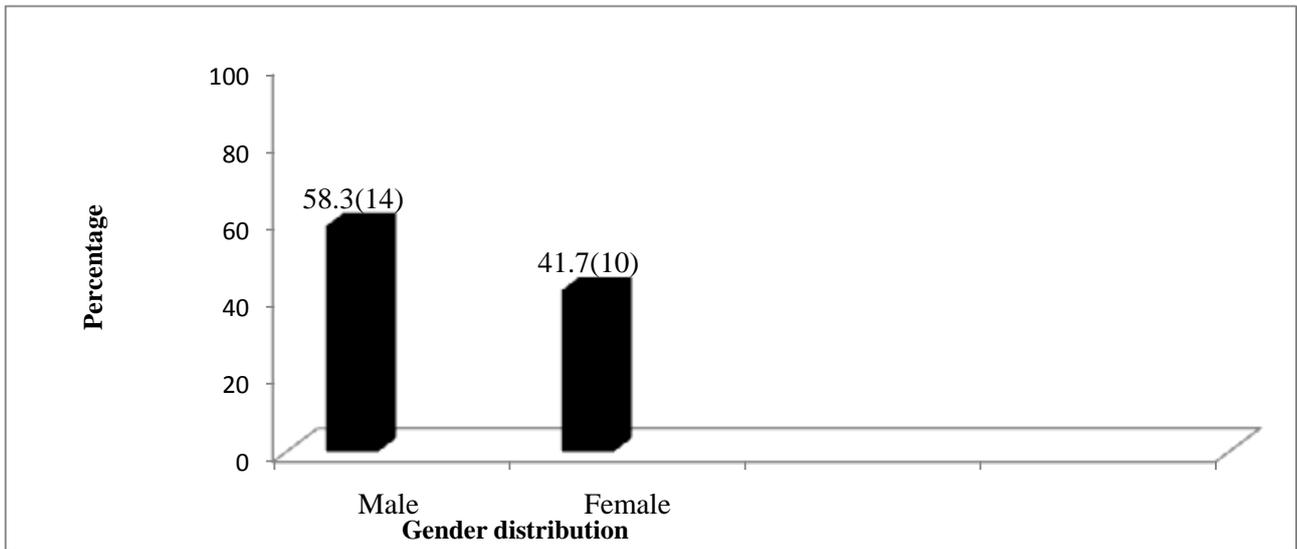


Figure 2: Distribution of HCV patients according to gender

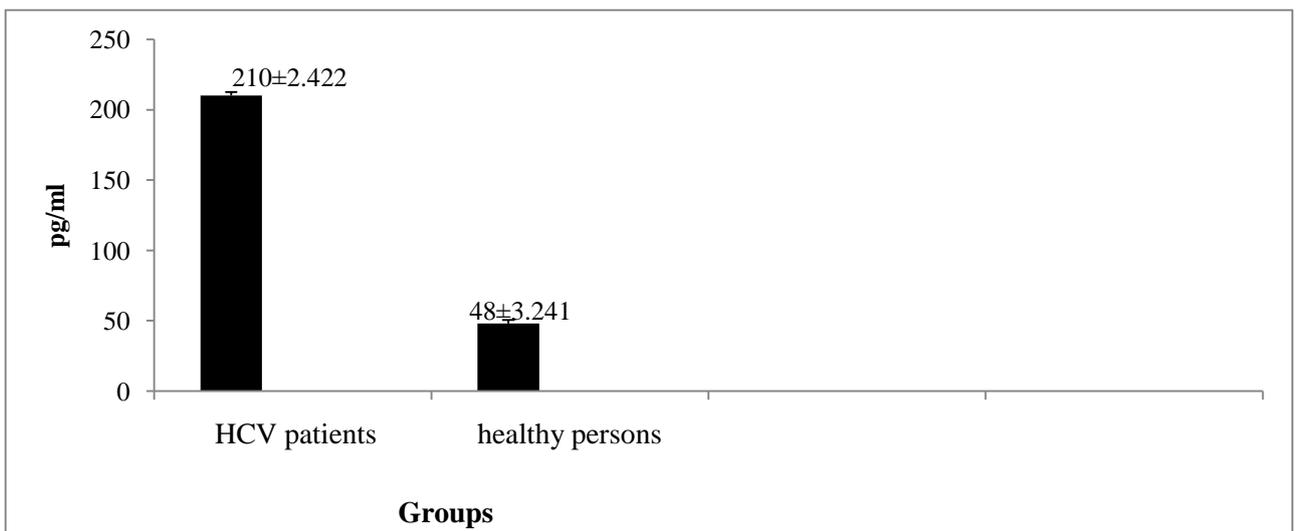


Figure 3: levels of IL-8 in HCV patients and healthy persons



Figure 4: significant differences between IL-8 levels in both HCV patients and healthy persons

## Discussion

Rate of HCV positive cases was high in 21-40 years age group with a significant difference from the other age periods ( $p \leq 0.05$ ), this agreed with results of Abou and Eltahir, 2009 [15] and Alhilfi *et al*, 2015 [16], while

disagreed with that of Alsamarai *et al*, 2016 [17]. Exposure of individuals at age period between from 21 to 40 years to the risk of HCV infection is high than others age periods due to high sexual activity of the human at this age with unawareness of the safe sexual procedure in some conditions, which raise the

probability of viral transmission from person to another via sexual route [18]. Occurrence of HCV in male was high than in female with no significant difference, this results paralleled with those of Hamied *et al*, 2010[19] and Koulentaki *et al*, 2001 [20] and differed from that of Shakeri *et al*, 2013 [21].

Result of high IL-8 level in HCV patients when correlated with control group agreed with that established by Mihm *et al*, 2004 [22]. Infection with HCV causes increasing in the production of IL-8 due to persistence of the core and NS5A proteins of it, which encourage the expression of IL-8 gene. High level of IL-8 will improve the maintenance of HCV infection because this interleukin associated with resistance to interferon

treatment [23]. Severity of the liver inflammation as a result of chronic hepatitis is related to IL-8 [24]. In addition, one of the main clinical signs of hepatic fibrosis is raised IL-8 [25].

## Conclusion

Absence of prophylactic procedures especially vaccination make HCV highly infectious and fatal disease. Both genders are under attack of HCV infection. Age period of the individuals, that reach in it to maximum level sexual activity is associated with the resistance to gain this virus. IL-8 is a good indicator to liver disease such as HCV; it rises significantly in patients in comparison with healthy persons.

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