

HCV Prevalence, Risk Factors and Precaution Practices among Patients in Karbala City

Zahraa Kamaz

College of Nursing, Karbala University, Karbala 56001, Iraq

*Corresponding author: Zahraa Kamaz

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Abstract

Hepatitis C is a major global problem, there are 71 million of people have chronic HCV, 50%-80% of them develop liver cirrhosis and cancer. Around 350,000 to 500,000 of infected people die yearly from HCV complications. Prevalence of HCV in Iraq have not estimated since 2017. The current study aimed to assess the number of HCV infected people in Iraq, identify the most important risk factors for HCV transmission and lastly survey infected people to investigate their precautionous practices in order to prevent HCV transmission. HCV infection recorded the highest in 2018 with 3.7% of people are infected per 10,000 whereas in 2017, prevalence rate was 0.05%. HCV infection were dominant among male with age group between 40-51 ($p>0.05$). Most important risk factors for HCV transmission are hemodialysis and repeated blood transfusion in thalassemia patients, HCV infections were 23% and 16% consequently. Most surveyed patients (72.5%) are doing good practicing to prevent HCV transmission whereas the latitude of few patients (27.5%) is not enough to prevent the spread of disease, most of those patients are married couples who practicing unprotected intercourse and under no antiviral medications.

Keywords: Hepatitis C, HCV prevalence in Iraq, HCV risk factors.

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INTRODUCTION

Hepatitis C infection is a blood born disease, acute hepatitis C is usually a symptomatic with incubation period 6-7 weeks, some individuals may experience nonspecific symptoms such as mild abdominal pain, fatigue, vomiting, low grade fever and nausea, people with acute hepatitis C are rarely develop jaundice [1]. Diagnosis of acute hepatitis depending largely on pre-exposure risk such as health care workers in contact with Hepatitis C Virus (HCV) infected people or post-exposure with percutaneous needle sticks of infected individuals [2]. Monogamous male who involved in rigorous sex, thalassemia patients who receive blood repeatedly & drug abusers with repeated parenteral exposure with contaminated equipment are diagnosed depending on liver functions tests like elevated ALT, positive HCV RNA and or positive HCV antibody [3]. 60-80 % of individuals with acute hepatitis c develop chronic infection, Cirrhosis and hepatocellular carcinoma (HCC) are major complex of chronic infections. About 80-90 % of HCC are resulted from chronic HCV infections, therefore chronic HCV infection consider as a global health problem [4].

Hepatitis C virus is RNA virus belongs to flaviviridae, replicate inside liver cells and some lymphocytes such as peripheral blood monocytes. There are at least 6 genotypes of HCV. High error rate of RNA replication lead to many HCV variants or what called quasispecies [5, 6]. Distribution of HCV genotypes is determined in 2017 for middle east countries, Algeria, Iran, Morocco, Oman, Tunisia, and UAE HCV genotype1 was dominant with 50% of occurrence, genotype 3 was dominant in Pakistan and Afghanistan while genotype 4 was dominant in Iraq, Jordan, Syria, Palestine, Egypt and Saudi Arabia [7]. HCV transmission occur through parenteral routes, it has been estimated that 60% of HCV transmission is through needle sticks of drug abusers, 15 % through sexual behavior, 10% of HCV transmission occur by blood transfusion and 10% of HCV transmission remains unknown [8].

World health organization estimated that 71 million people have chronic HCV, there are 399 000 of people die from HCV complications each year. About 21.3 million are career of HCV in middle east countries [1]. In Iraq, prevalence of HCV was 7.1% in general population in 2011 [9]. Prevalence data that available recently are for some regions of Iraq, Kurdistan region

of Iraq has 5.7% HCV positive people [10]. Major risks for HCV transmission in Iraq were among thalassemia patients with 13.5% of patients' positive for HCV & hemodialysis patients with 7.1% of HCV prevalence [11, 12]. From previous data, it appears that most HCV infections happen through blood transfusion. Since there are no survey conducted in Iraq about HCV prevalence in general population in 2018, we aimed to estimate the epidemiology of HCV in Karbala city in Iraq, we also will survey thalassemia patients and hemodialysis patients who are HCV positive. Blood donors will be included in this study to show the percentage of HCV among blood donors since blood transfusion is the main vehicle of transmission.

METHODS

Sampling

Records of people with positive HCV from January 2018 to 31 of December 2018 were collected from Al-Hussein teaching hospital, laboratory department; blood bank; central laboratory department in Karbala; hemodialysis department and thalassemia department. Demographic information included sex and age for each patient was included. Random sampling method was applied upon choosing representative sample for estimation HCV prevalence in Karbala [13]. Population size for Karbala government was obtained from Ministry of planning website.

Records for HCV prevalence in all Iraqi's governorates for 2017 were obtained from the local health directorate in Karbala city.

Questionnaire

People with HCV are asked to fill out a questionnaire form to investigate their precaution practices in order to prevent disease transmission. The questionnaire form contains the following questions:

- If the patient stops blood donation?
- If the patient tells dentist or other health care providers that he/she has HCV?

- If the patient is doing protected sex?
- If the patient burns his own disposable equipment after use?
- If the patient is under medicine against HCV?
- If the patient isolates his own staff like toothbrushes, utensils, etc... for his own use only?

Ethics approval

Patients who participated in the survey were asked to sign the following consent form before they answered.

Consent form: This is a certify that patient's information will be confidential, patient is voluntarily participates in this survey and has the right to answer or not the questions regarding how he/she got an HCV infection, also the researcher is responsible to make any information in the questionnaire form clear for the participants, all the information will be protected and never used for personal benefits, your information will be kept anonymously and will be used for publication purpose only, this is why this consent form is formed and if you agree to participate in this study, please sign the consent.

Statistical Analysis

F test is used to measure the significance between male and female, younger and older patients. Also identify the significance of risk factors (renal dialysis & thalassemia).

RESULTS

Prevalence rate has been calculated by dividing total number of patients (HCV positive) over population number of Karbala city [14]. Total number of patients with HCV is 386 with prevalence about 3.7%. prevalence rate for the past five years is stated in Figure-1, HCV recorded highest prevalence (3.7) in 2018.

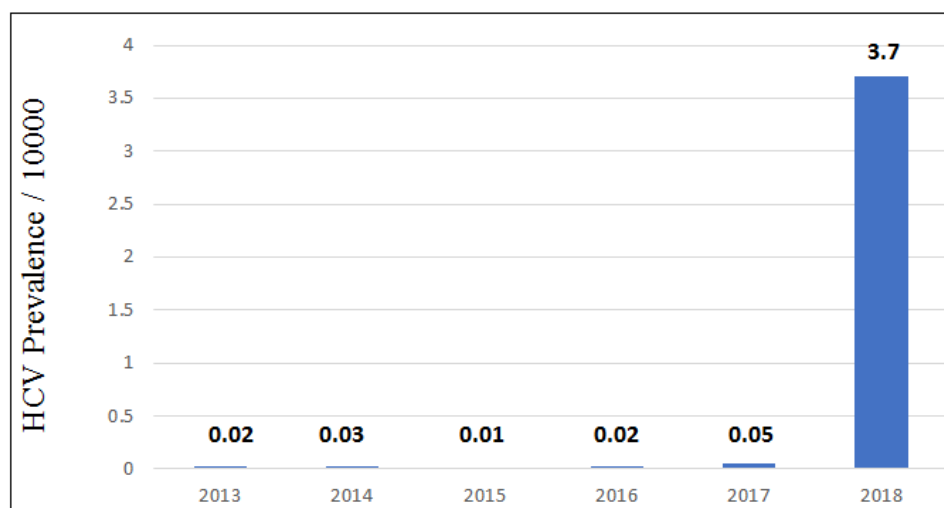


Fig-1: HCV prevalence per 10000 of people was recorded for the past five years

Total number of male with HCV is 220 (57%) and female number with HCV is 166 (43%). Male between 41-50 years were the highest group among

HCV positive patients, Figure-2 showed male and female with HCV, they distributed according to their age (0 year-80 years).

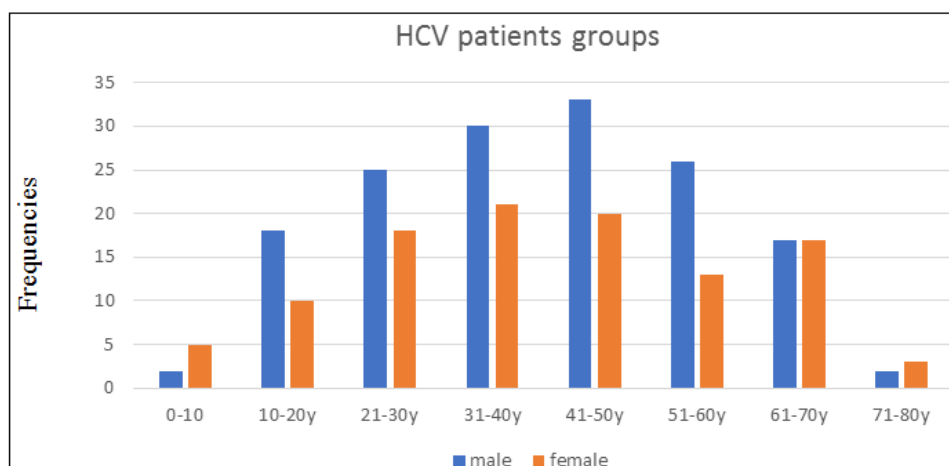


Fig-2: male & female patients are distributed according to their ages from 0 year- 80 years

*Note: P value for Age categorizes is 0.036, P value for sex differences is 0.003, $P > 0.05$ consider significant.

Risk factors for HCV incidence include unknown risks (58%), hemodialysis patients (23%),

thalassemia patients (11%) and blood donors (8.3%) who are HCV positive (Figure-3).

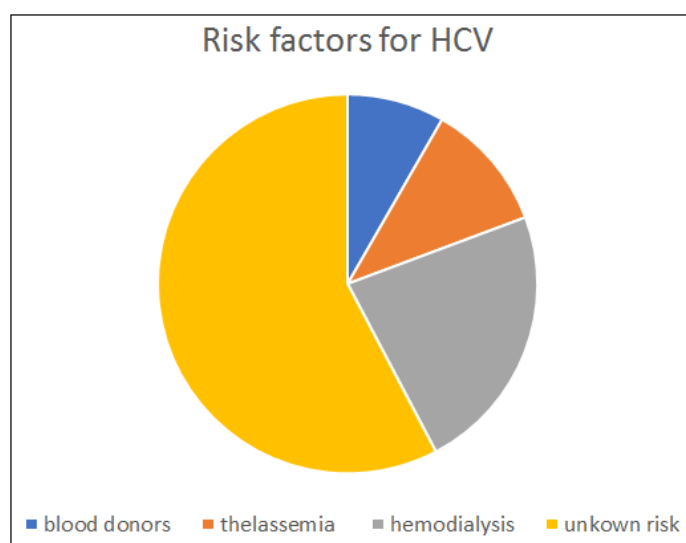


Fig-3: Percentage of risk factors (Hemodialysis, Thalassemia, blood donors, unknown risks) among HCV positive patients

P value was 1.5 for all groups, there is no significant difference among risk groups.

40 People with HCV who filled out the questionnaire form are mostly doing a good practicing to prevent disease transmission to others with 72.5% and few patients (27.5%) are with poorly practicing,

most of them are married couples who are practicing unprotected intercourse.

HCV prevalence in Iraqi governorates in 2017 is stated in Table-1.

Table-1: male and female numbers with HCV in Iraq for 2017

Iraqi governorates	No. Patients with HCV		Total number
	Male	Female	
Baghdad/ Al- Karkh	3	8	11
Baghdad/ Al- Rusafa	108	88	196
Basrah	7	7	14

Mosul	0	0	0
Maysan	4	0	4
Al- Dewaniya	13	11	24
Diyala	9	6	15
Al- Anbar	9	9	18
Babylon	0	8	8
Karbala	1	4	5
Kirkuk	9	15	24
Wasit	14	22	36
Thi-Qar	2	12	14
Al- Muthanna	2	1	3
Salah Al- Deen	23	31	54
Al- Najaf	0	0	0
Erbil	4	2	6
Duhok	1	2	3
Al- Sulaimanyia	87	72	159
Total number	296	298	594

*Above information has been obtained from Karbala health directorate

DISCUSSION

There are non-available data about HCV prevalence in Iraq for 2018. Our data showed HCV prevalence is the highest among the past five years. HCV infections considered as a significant health problem in middle east since some regions such as Egypt has high prevalence rate more than 15% [15]. Many risk factors aid in HCV epidemiology in certain countries. In Iraq, poor hygienic conditions especially in rural areas and poor knowledge for HCV patients constitute the main reasons behind high HCV prevalence in Iraq [16]. Compromised immune system especially in elder people considers as the key for getting HCV infection where the virus is endemic in the specified region [17, 18].

Risk factors for HCV transmission are determined in this study. Hemodialysis and thalassemia patients have the high percentage of HCV infections beside other unknown risk factors. Recent available data about HCV epidemiology in hemodialysis patients in Iraq showed male were infected more than female [12]. Researchers stated that the rate of thalassemia patients who have HCV was 13.5% in 2017 [11]. Recurrent blood transfusion is a major risk for HCV transmission. Blood screening for HCV antibodies by EIA has some false negative results about 0.1%-1% [19]. Rapid diagnostic tests (RDTs) to detect HCV antibodies were more specific than EIA, a study showed [20, 21].

Daily practicing of HCV infected people is an important limitation for HCV spread. Unprotected sex with non-infected person may transmit the virus, however HCV transmission through sex is low [22]. Some surveyed patients in the current study are less cautious to prevent HCV transmission, such as not disposing or burning their needles properly. Although, the virus is transmitted through blood only but there is a probability of getting infection through injuries by

sticks of contaminated needles about 3% [23]. Majority of patients in this study are not taking anti-HCV medicines for poverty reasons. Treating HCV patients is a vital to prevent its spread, available antiviral medications sustain the viral replication and drop it to undetectable levels [24].

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