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Research Article

**THE SEROTYPES OF HCV IN THE PATIENTS OF LIVER  
COMPLICATIONS**<sup>1</sup>Dr Sajjad Ahmad, <sup>2</sup>Dr Muhammad Awais, <sup>3</sup>Dr Najeeb Ullah<sup>1</sup>Allied Hospital Faisalabad.

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**Abstract:**

**Objective:** The purpose of this research work is to find out the serotypes of hepatitis C virus in the patients are suffering from CLD (chronic liver diseases), which is secondary to the chronic infection of HCV in the areas of Upper Punjab, Pakistan.

**Material and Methods:** The patients having the medical traits of CLD, high level of ALT, found with + anti hepatitis C virus & hepatitis C virus ribonucleic acid + with the help of PCR have to undergo the hepatitis C virus serotype determination. This study was conducted in Allied Hospital Faisalabad where we gathered the data of confirm patients of HCV infection for investigation, the ethical committee gave his approval for the conduct of this research work. Patients gave written consent to participate in this valuable work.

**Results:** There were 148 patients in this research work. Male and female patients were 62 & 86 respectively. Ninety-five patients (64.10%) found with hepatitis C virus serotype 3. Most of the patients of HCV serotype 3 were from 30 to 60 year of age. The 2<sup>nd</sup> & 3<sup>rd</sup> very frequent kinds were not able to be type and hepatitis C virus serotype. Females were dominant to males in the matter of number.

**Conclusion:** The patients who were suffering from the lingering disorders of liver because of the infection of HCV in this specific part of our country Pakistan had mainly serotype 3 of hepatitis C virus.

**Key Word:** Hepatitis C, Chronic Liver Diseases, Untypable, Dominant, Infection, Determination.

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**INTRODUCTION:**

The infection of HCV better known as infection of hepatitis C virus is the main reason of CLD in United States of America [1] & in many other areas of the whole world. Pakistan is also one of the most infected country from this complication in the world [2]. To know about the cause of the disease, the spread of the disease and its outcomes, the determination of hepatitis C virus serotype is very valuable because it helps to provide a better way for the treatment against infection of HCV as well as in the development of the vaccine for its therapy [3, 4, 5]. The serotypes of hepatitis C virus may differ in different parts of the world according to the environment [6, 7, 8, 9].

The studies conducted in the past in our country Pakistan showed that the most frequently separated genotype of hepatitis C was type 3 [10, 11, 12, 13]. There are many procedures which are in use for the genotype's determination of hepatitis C virus [3]. The technique of PCR is the part of many procedures which are sometimes cumbersome. Some current research works have displayed that the determination of the serotype, which is not much hard & includes no complex nature due to extreme easiness, is correspondingly convenient, as conducted with the help of Murex Hepatitis C virus serotype assay version from 1 to 6 [14]. The main purpose of this case study was to find out the serotypes of hepatitis C virus in the patients who were suffering from the infection of chronic HCV who offered to our department for the assessment in this particular part of Upper Punjab, a well modernized area of our country Pakistan.

**METHODOLOGY & PATIENTS:**

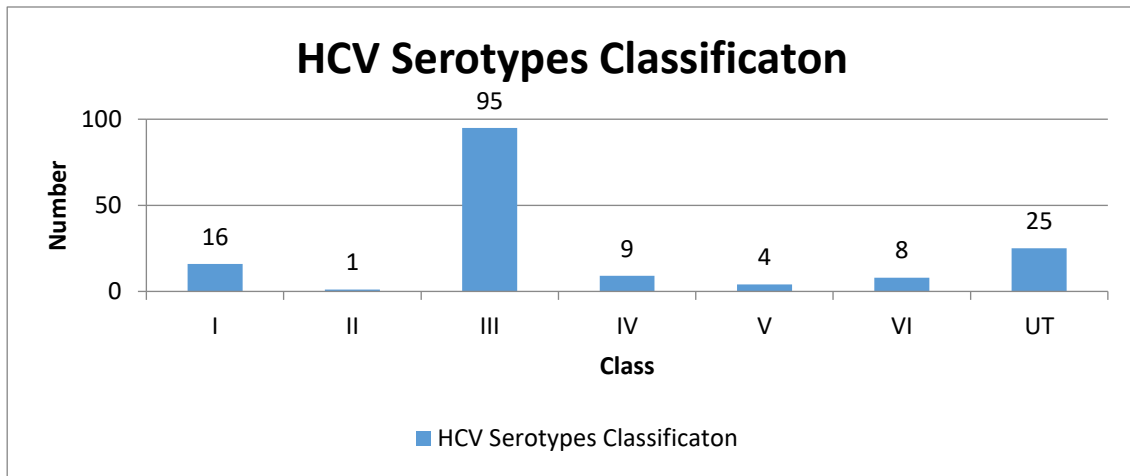
One hundred and forty-eight patients were the part of this research work. The patients found with the medical traits of chronic disorders of liver with raised level of ALT, + anti hepatitis C virus & hepatitis C virus ribonucleic acid + with the help of PCR were the participants of this research work. The patients diagnosed with some other serious diseases were not the part of this study. All the participants of the research work gave their written consent to participate in the study. The ethical committee of Allied Hospital Faisalabad gave the approval for the conduction of the research work. The serotype determination of all the patients for hepatitis C virus carried out. The duration of this research work was from January 2016 to December 2018 for a period of complete two years. Abbot Murex Hepatitis C virus serotype version 1 to 6 was in use for the determination in this research work.

**RESULTS:**

Total one hundred and forty-eight patients of suffering from the infection of hepatitis C virus were the participants of this research work. About 64.10% (n: 95) patients were available with serotype 3 of HCV. This was the most common serotype of the HCV. Sixty-two (41%) patients were males and 86 (58.10%) patients were females. Females outnumbered the male patients.

**Table 1: Distribution of HCV Serotypes**

Classification	No
I	16
II	1
III	95
IV	9
V	4
VI	8
UT	25

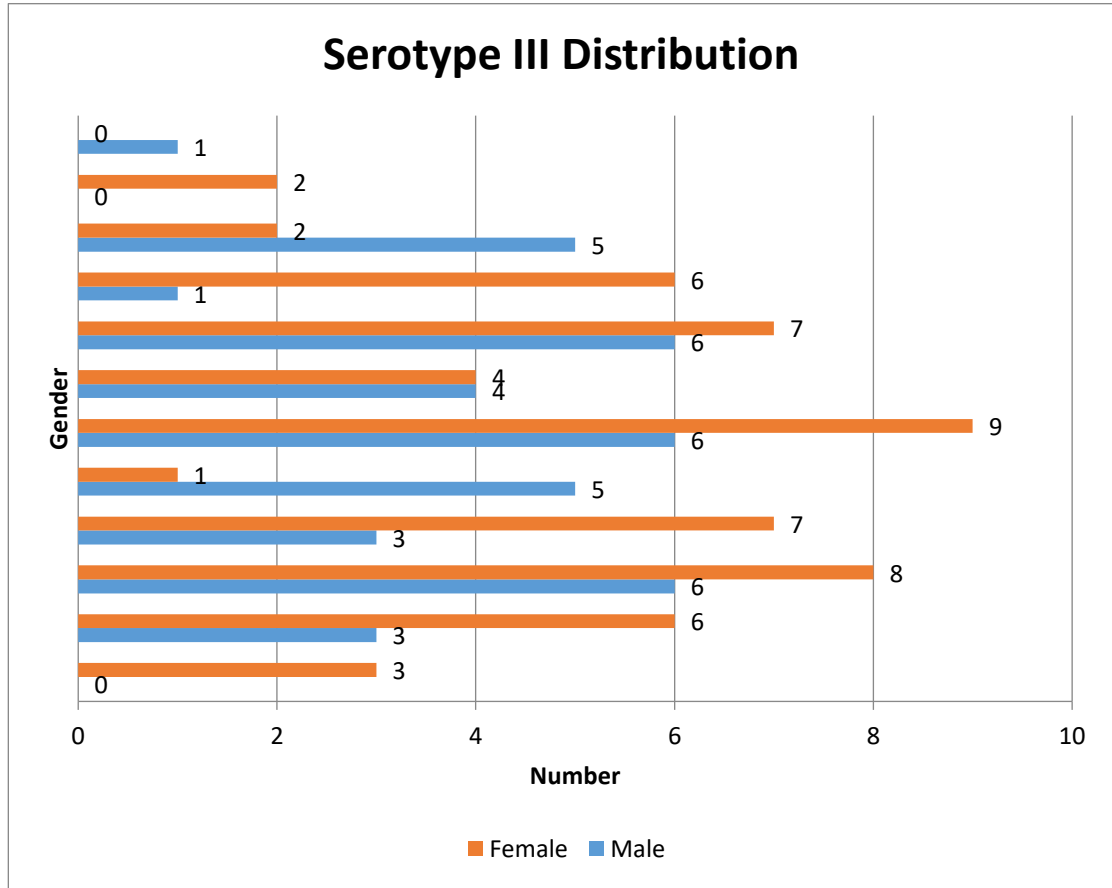


Most of the females were housewives. Therefore, it is an astonishing fact that though they had less exposition to the outer environment yet they were largely the victim of the disease as compared to men who were working outside for their job activities. Other most frequent serotype was untypable with 25 patients. Sixteen patients found with HCV serotype 1. The number of patients found with HCV serotypes 2, 4, 5, 6 are 1, 9, 4, and 8 respectively as elaborated in

Table-1. We found that most of the patients of serotype 3 were from 18 to closely 70 years of age. But a large quantity among them was from 30 to 60 year of age. Out of 95 patients suffering from serotype 3 of HCV, we found 58.90% (n: 56) females and 41.10% (n: 39) male patients. The number of patients suffering from HCV serotype 3 with their age group is available in Table-2.

**Table 2: HCV Serotype III Distribution**

Age	Gender		Total (n=95)
	Male	Female	
16-20	0	3	3
21-25	3	6	9
26-30	6	8	14
31-35	3	7	10
36-40	5	1	6
41-45	6	9	15
46-50	4	4	8
51-55	6	7	13
56-60	1	6	7
61-65	5	2	7
66-70	0	2	2
>70	1	0	1



**DISCUSSION:**

The determination of all serotypes in the patients of these particular part of upper Punjab, Pakistan is very much similar to the results of many case studies conducted in the past [10, 11, 12, 13]. It is very hard to treat the hepatitis C virus serotype 1 which has so much complication [4, 5] & it has very consensus conferences [15, 16]. The authentic and recommended therapy for hepatitis C virus is at least of forty-eight weeks which is very long duration. HCV serotype 3 is gave a positive response to the antiviral treatment and it is not much difficult to overcome. In our country, the availability of serotype 3 of HCV has seemingly been a cause for significantly good response in the patients suffering from the infection of hepatitis C to the treatment of Interferon & Ribavirin [17]. The most common serotype in these regions of our country are serotype 3. This is very much similar to the presence of serotype 3 in many other countries of the world as United States of America and many other Europeans countries. The conclusion of this research work showed that the determination of the serotype helps us to administer the disease in a better way and tackle the problem with hundred percent accuracy.

There was some limitation of this research work as the number of the participants of this research work were less in quantity. The research work conducted in only specific area of the country so it is very difficult to generalize the findings of this case study on the whole country because the infection of HCV depends upon the dietary habits and living conditions of the people. Further investigations on a larger scale are necessary to reach an eminent decision which would be helpful in the treatment of the HCV infection as well as it will provide the way to get rid of this terrible disease in very initial stage in the whole world.

**CONCLUSION:**

According to the conclusion, this case work displays that the most dominant hepatitis C virus serotype in our specific areas is the HCV serotype 3. We cannot neglect the other serotypes of HCV which are also present in the patients but less in frequency. The serotypes determination is very important because it will provide the help and encouragement to perform the treatment against the infection of HCV in the chronic diseases of the liver. The determination of the serotype is also important to provide a proper way for the treatment of the HCV infection which is an increasing disorder of the whole world.

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