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Research Article

**HIGH RISK OF GALLSTONE DISEASE; INFECTION OF  
HEPATITIS C VIRUS**Dr Bilal Mustafa<sup>1</sup>, Dr Abrar Iqbal<sup>2</sup>, Dr Adnan Rehman<sup>3</sup><sup>1</sup>Bahawalpur Victoria Hospital Bahawalpur<sup>2</sup>Allied Hospital Faisalabad<sup>3</sup>DHQ Teaching Hospital Gujranwala

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**Abstract:**

**Objective:** The most common risk factors for the GD (Gallstone Disease) are diseases of liver. Some research works have concluded the connection among HCV infection & high occurrence of GDs but those research works were unable to exclude the other risk factors from the patients as cirrhosis. The aim of this study is to establish a relationship among the infection of HCV & GDs with the exclusion of remaining risk factors for gallstone diseases.

**Methodology:** This transverse research work conducted in Bahawalpur Victoria hospital Bahawalpur, Pakistan for a duration of about 18 months. The patients referred for the abdomen's ultrasound were the part of this research work. Two thousand patients were the part of this study selected by non-probability samplings technique. Anti-hepatitis C virus antibody test performed for every patient with the utilization of the ELISA & sonography for the determination of the availability or non-availability of the gallstones.

**Results:** the patients of HCV infections found with high rate of the gallstones in comparison with the healthy controls. In the HCV infected patients, gallstones disease was more prevalent in males as compared to the females and occurrence of the gallstone was high in the young people having less than 40 year of age.

**Conclusion:** The danger of GDs is very high in the patients suffering from the infection of HCV. This relationship is more prevalent in the male patients.

**KEYWORDS:** Gallstones, Infection, Anti-Hepatitis C Virus, Prevalent, Exclusion, Healthy.

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**INTRODUCTION:**

HCV infections are present in the whole world and it is an estimation that 170 million populations are suffering from this disease in the whole world [1]. In our country Pakistan, about 4.70 is positive for hepatitis C virus. The is the 2<sup>nd</sup> greatest rate after Egypt (15.50%) [2]. In current times, more amount of males is suffering from the diseases of gallstones and its complications. An important quantity of these patients found positive for HCV infection. There is a record of association gallstones with liver diseases in our medical data [1, 3, 4] but no research work carried out in our region despite the reality of high prevalence of HCV infection in our region. The factors of risks elaborated for GD are hyperlipidemia [5], fatness [6, 7], and levels of high serum in the sex hormones of females [8], SCA (Sickle Cell Anemia) & thalassemia [9]. Liver cirrhosis is also the well-acknowledged factor of risk for the disease of gallstones [10, 11]. There is a little information about the GD in the persons suffering from HCV infection with no availability of cirrhosis [1, 4].

Different works found that patients with HCV infection develop GD at very younger age [3] & gallstones can be available in bile ducts (0.40%) in comparison with the general public (0.10%) [12]. There is a finding that males suffering from GD are more in need of surgery as compared to the female patients [5]. Our organization made the clear distinction that there is clear disparity of GDs in the patients suffering from infection of HCV or without this. So, the infection of hepatitis C virus is the major risk factor for the GD.

**MATERIAL AND METHODS:**

The duration of this research work was from December 2016 to May 2018 at Bahawalpur Victoria hospital Bahawalpur. The patients of 4 hospitals were the part of this research work. Same radiologist performed the sonography to maintain the standard for all the patients. All the patients who got referral for the

ultrasound of the abdomen cavity were the part of this study. Non probable sampling technique was in use for the screening of the samples. A Performa was used for the collection of the information. ELISA was in use for the testing of Anti Hepatitis C virus antibody. Same number of persons with infection of hepatitis C virus or without it selected for the availability of GD. Ultrasonography of abdomen of all the patients carried out and identification of the gallstones performed with the availability or absence of liver cirrhosis.

Group-1 consisted the patients of HCV infection and group-2 consisted the patients without HCV infection. Patients of both genders between 18- 70 year of age were the part of this case study. The patients with unbalanced LFTs because of other complications than HCV were not the part of this case study. SPSS V.18 was in use for the analysis of the collected information. Chi square method was in use for the finding of any relationship between infection of HCV and GD with the comparison of the gallstone's presence in both groups. The calculation of the odds ratios with 95.0% CI (Confidence Intervals) also carried out.

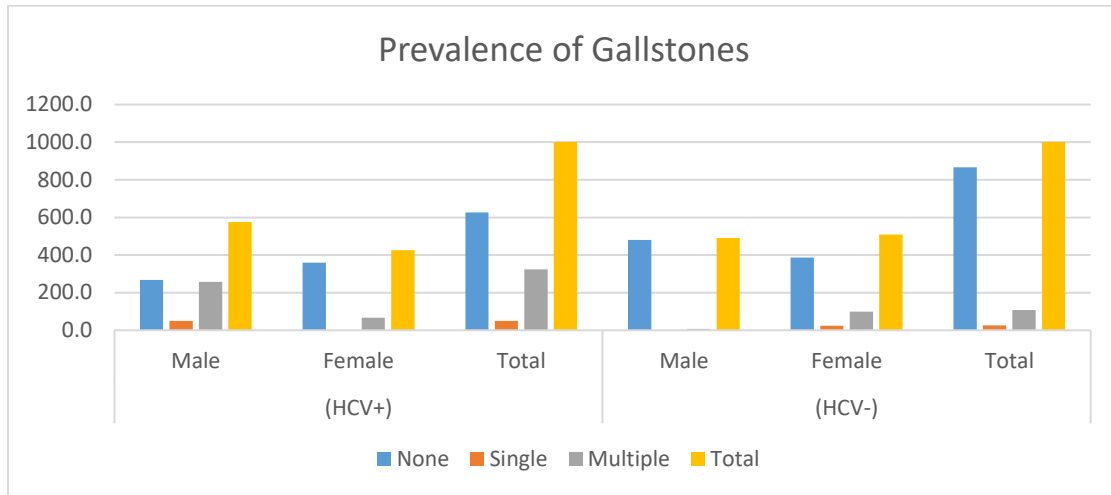
**RESULTS:**

A sum of 2000 patients were the part of this case work. One thousand patients were suffering from HCV infection and 1000 were without it. Total 1066 (53.30%) patients were men & 934 (46.70%) were from female gender. The average age of the patients was  $41.7 \pm 10.11$  years with a range of 19-66 years. About 63.20% HCV infected patients were of the age of 40 years or below, but 60.40% without HCV infection were having the age above 40 years. The males & female's patients with HCV antibodies were 57.50% (n: 575) & 42.50% (n: 425) correspondingly. The availability of the gallstones found in 514 patients (25.70%). In the patient without HCV Infection, gallstones were present in 0.90% in comparison to 13.90% in women. The rate of the groups presence of gallstones in two and comparison among them is present in Table-1.

**Table-1: Presence of Gallstones in Study Groups**

Study Group		(HCV+)			(HCV-)		
		Male	Female	Total	Male	Female	Total
Number of Stones	None	268.0	359.0	627.0	481.0	386.0	867.0
	Single	50.0	0.0	50.0	2.0	24.0	26.0
	Multiple	257.0	66.0	323.0	8.0	99.0	107.0
Total		575.0	425.0	1000.0	491.0	509.0	1000.0

**p value: 0.001**



The distribution according to the sex is available in Table 2 while Figure-1 displays the distribution of the age. The value of the odd ratios was 3.390% with a CI of 95%.

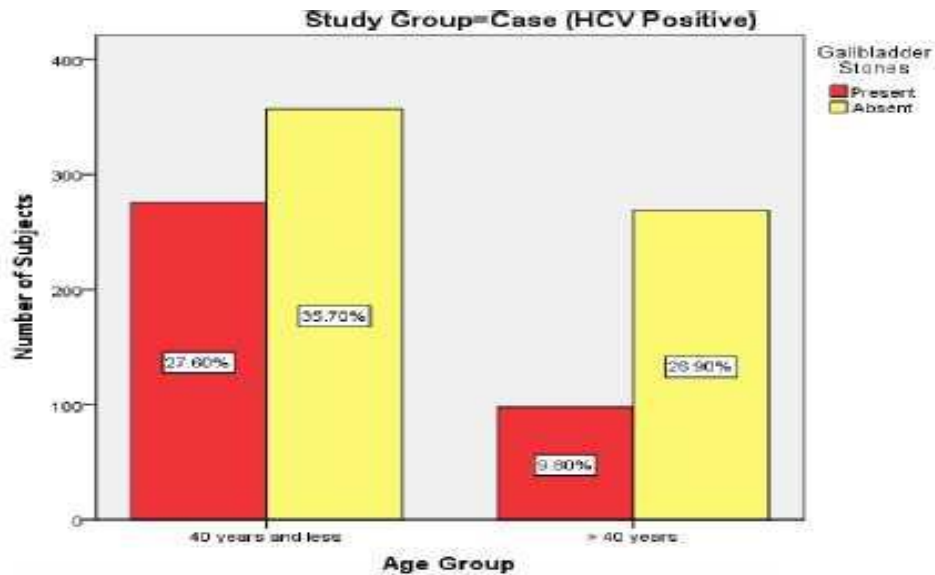
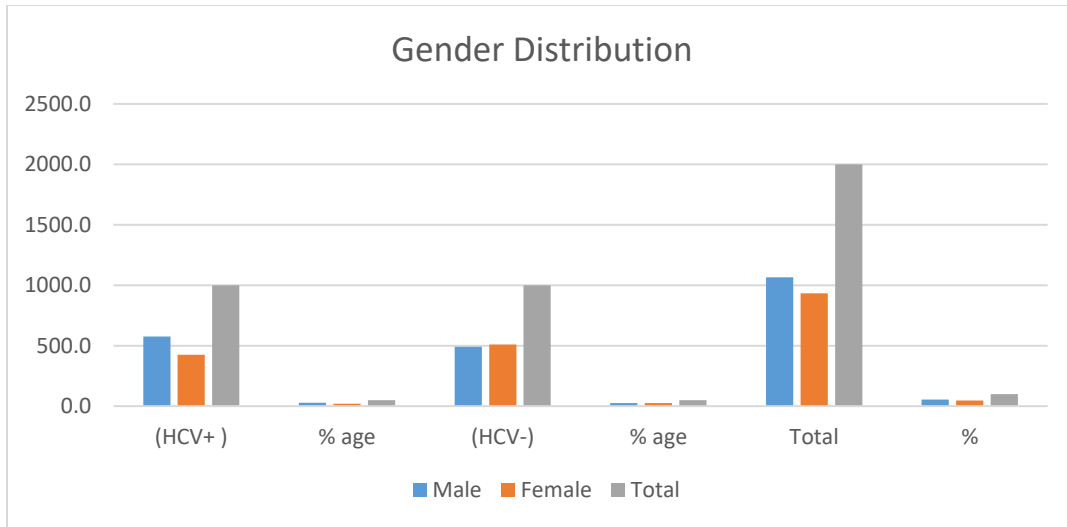


Table 2: Gender Distribution of Subjects

Study Group	(HCV+ )	% age	(HCV-)	% age	Total	%	
Gender	Male	575.0	28.80	491.0	24.60	1066.0	53.30
	Female	425.0	21.20	509.0	25.40	934.0	46.70
Total	1000.0	50.00	1000.0	50.00	2000.0	100.00	

p value: 0.001

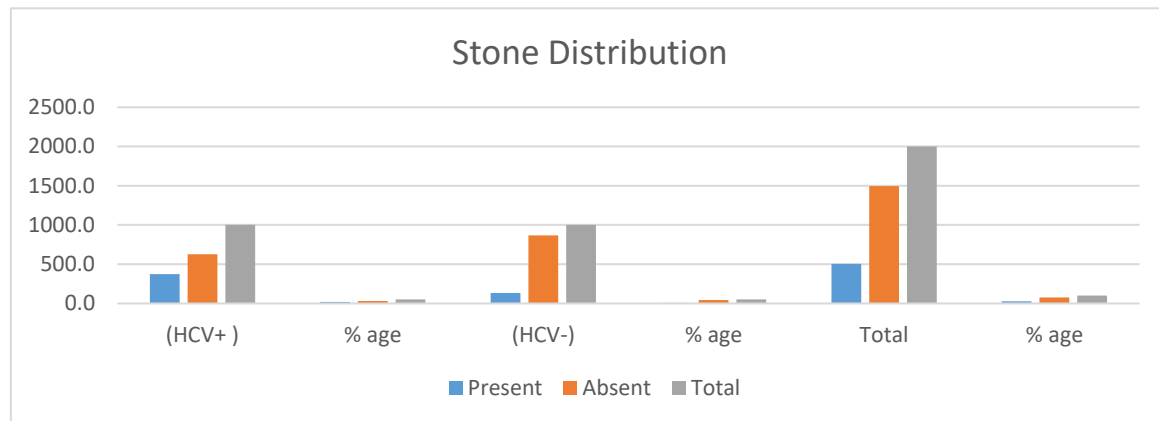


The gallstones frequency is very high in the male patients suffering from HCV infection but it is low in the females HCV infection. The labeling of the amount of the gallstones in the gallbladder carried out as single, multiple and/or no stones. There is a clear association among infection of HCV and multiple stones of gallbladder as displayed in Table-3.

**Table 3: Distribution of Stones in Both the Groups**

Study Group	(HCV+)	% age	(HCV-)	% age	Total	% age	
Gallbladder Stones	Present	373.0	18.65	133.0	6.65	506.0	25.30
	Absent	627.0	31.35	867.0	43.35	1494.0	74.70
Total	1000.0	50.00	1000.0	50.00	2000.0	100.00	

**p value: 0.001**



**DISCUSSION:**

There are different types of gallstones but the most common calculi which are available, are the stones of cholesterol. The dangerous features for the stones of cholesterol and the above-mentioned stones, comprise fast loss in the weight [13, 14], hormones of the female sex [8, 15, 16], DM (Diabetes Mellitus) [17]. Liver cirrhosis is also a risk factor for GD [10, 11, 18]. Stroffolini concluded that the occurrence of the

gallstones was high in the patients suffering from HCV associated cirrhosis [18]. There are many factors of the production of gallstones in the disease of cirrhosis as less release of the bile acids, less motility of gallbladder [19] & less cholesterol production. Li was unable to find any important disparity in the level of hormones of sex among cirrhosis with available r non available gallstones [20]. We found only 3 case works on the subject [1, 3, 4]. The first research work

carried out for the identification of this association in Taiwan. Chang [3] concluded that the prevalence of the GD was high in the HCV infected patients as compared to the healthy controls. Bini [4] assessed more than thirteen thousand people and diagnosed 12.50% HCV patients found with GD and males were dominating in this matter.

Acalovschi stated 19.0% prevalence in the patients of HCV infection. In this research work, we found 37.40 HCV infected patients found with gallstones in comparison with the 14.0% of negative HCV participants. In contrast to the previous work, the incidence was very high in both groups, it may be the result of the sampling method but Acalovschi utilized the same method [1]. This outcome shows the high incidence in our population. Bini concluded that infection of HCV is very clear factor of risk for GD in men but not in women [4]. This finding is much similar to our results. Our results concluded that young people were mostly the victims of this complication which are similar to the results of Acalovschi & Chang [1, 3]. There are different reasons of the HCV infection resulting GD. The lazy liver function in the production of the bile acids is on cause [21], gallbladder infection due to hepatitis C virus [22] & hypo-motility of gallbladder [19]. The infection of HBV has no impact on the increase of the frequency of gallstones [4]. Some case works have stated the protective impact of HBV infection in the production of gallstones [23]. This is the 1<sup>st</sup> research work to elaborate the association between HCV infection and gallstones in not only our country but in the whole South Asia. The only limitation of this research work is that we did not chose the general public.

### CONCLUSION:

We found a clear relationship between infections of HCV & GD. So infection of HCV is high factor of risk for GD in young populations especially males. More studies in the future are the requirements for to know about the association and generalize the findings of this case study.

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