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Research Article

**OCCURRENCE OF HCV INFECTION AMONG PATIENTS  
SUFFERING FROM THALASSEMIA**<sup>1</sup>Dr Umer Farooq, <sup>2</sup>Dr Muhammad Asif Bashir, <sup>3</sup>Muhammad Naeem Yousaf<sup>1</sup>BHU 31SB, Sargodha, <sup>2</sup>DHQ, Nankana Sahib, <sup>3</sup>Muhammad Medical College.

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**Abstract:**

**Objective:** This research work aimed to find out the occurrence of infection of hepatitis C virus in the patients suffering from thalassemia in the south region of Punjab province, Pakistan.

**Methodology:** This was a retroactive transverse case work conducted on two hundred and six patients suffering from thalassemia who got referrals to Jinnah Hospital, Lahore from the north regions of Punjab, Pakistan. This case work started in April 2017 & lasted up to May 2018. We gathered the data about demography of the patients from their files at hospital. The testing of samples of serum carried out with the help of anti-hepatitis C virus assays & nested-PCR method to evaluate the infection of HCV.

**Results:** Among total two hundred and six patients, 47.10% (n: 97) patients were male and 52.90% (n: 109) patients were females. The average age of the patients was  $16.40 \pm 6.42$  years. The total rate of occurrence of anti-hepatitis C virus was 28.10% (N: 58). Total 46 of positive anti-hepatitis C virus patients were also positive for RNA of HCV. The age of the patients with positive HCV was much high in comparison with the patients with negative HCV. The findings show that high occurrence of anti-hepatitis C virus or RNA of hepatitis C virus were available with a strong association with long transfusion period.

**Conclusion:** It appears that the screening of the blood donors has reduced the infection of hepatitis C, utilizing the more precise procedure is very vital regarding the infections due to viruses and for the treatment of the patients of thalassemia with infection of hepatitis C virus more cautiously.

**Keywords:** Occurrence, prevalence, thalassemia, HCV, infection, RNA, positive, comparison, evaluate, methodology.

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**INTRODUCTION:**

HCV is very frequent reason of the PTH (Post Transfusion Hepatitis) as well as end stage diseases of liver in different countries. Consistent transfusion of blood among patients suffering from inherited hemolytic anemia especially thalassemia has enhanced the rate of their survival but it also increases the danger of the gaining of the different infections of blood because of hepatitis due to viruses [1, 2]. Furthermore, in accordance with clear overload of iron in liver, which is usually preventable in patients with regular transfusion of the blood, there is a potentiating impact of the infection of HCV on the hepatic fibro-genesis in the patients suffering from thalassemia [3]. The region of this case work are in the center of Pakistan with a large population. This area shares water of rivers with the Sindh province this area has suffered a lot during the floods of 2010 [4].

However, thalassemia is very vital issue of health in our whole country especially in the southern regions of Punjab, Pakistan. So, this case work aimed to determine the occurrence of infection of hepatitis C virus among the patients suffering from thalassemia in that particular region of our country Pakistan.

**METHODOLOGY:**

This is a retroactive transverse case work. This case work started in April 2017 and lasted up to May 2018 in the southern regions of Punjab province on the patients suffering from Thalassemia in Jinnah Hospital, located in Lahore. We collected the samples of blood from all two hundred and six patients after

getting the consent of those patients. The separation of the serum from whole blood carried out, aliquot & stored at negative seventy  $^{\circ}$ C. we used the records of patient to gather the information about their demography as their age, quantity of transfusions of blood and duration.

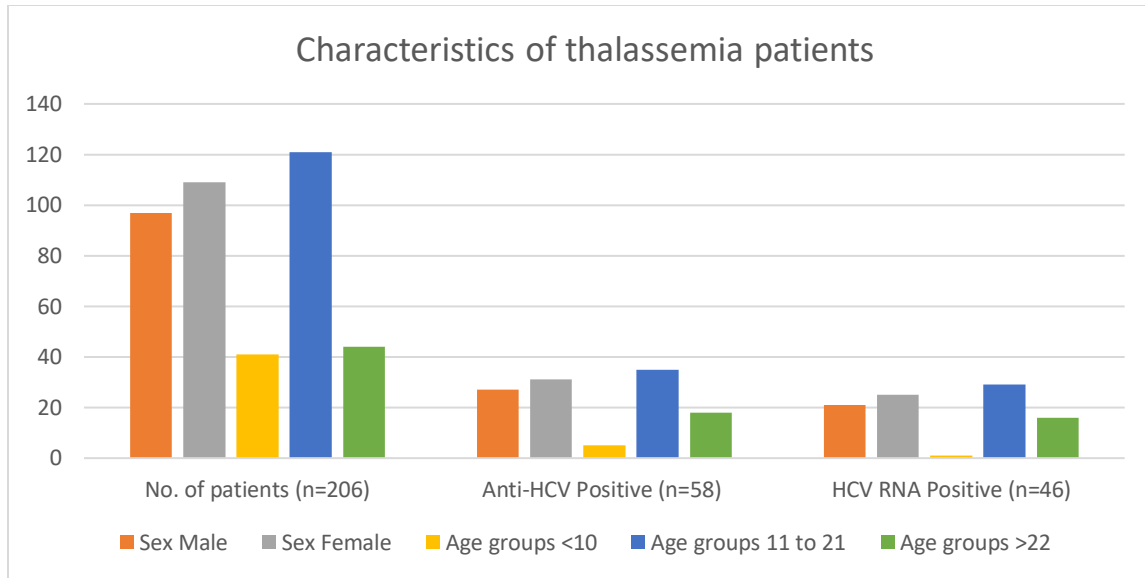
We carried out the screening of the serum utilizing anti-hepatitis C virus assays with ELISA kits following the guidelines of manufactures. The confirmation of the positive specimens carried out with the utilization of the nested RT PCR for hepatitis C virus. Nucleic acid kits were in use for the extraction of the RNA of HCV from 200  $\mu$ l serum amount according to the instruction of the manufacturer. Random primers were in use for the immediate transcription of the RNA of HCV into the cDNA. cDNA was then the target of nested PCR with the use of particular primers [5-7]. SPSS V. 13 was in use for the statistical analysis of the collected information. The comparison of the collected information carried out with the help of Chi-square & Student's T-test. P value of less than .050 was significant.

**RESULTS:**

Testing of 206 patients of thalassemia carried out in this case work. There were 47.10% (n: 97) male patients and 52.90% (n: 109) female patients as shown in Table-1; the average age of the patients was  $16.40 \pm 6.42$  years with a range of 2 to 34 years. Total 58/206 patients were positive for anti-HCV diagnosed by ELISA.

**Table-I: Characteristics of HCV RNA-positive and-negative thalassemia patients**

Factors		No. of patients (n=206)	Anti-HCV Positive (n=58)		p value	HCV RNA Positive (n=46)		p value
			No	%		No	%	
Sex	Male	97	27.0	27.80	1.0000	21.0	21.60	0.8000
	Female	109	31.0	28.40		25.0	22.90	
Age groups	<10	41	5.0	12.20	0.0100	1.0	2.40	0.0010
	11 to	121	35.0	28.90		29.0	24.00	
	>22	44	18.0	40.90		16.0	36.40	



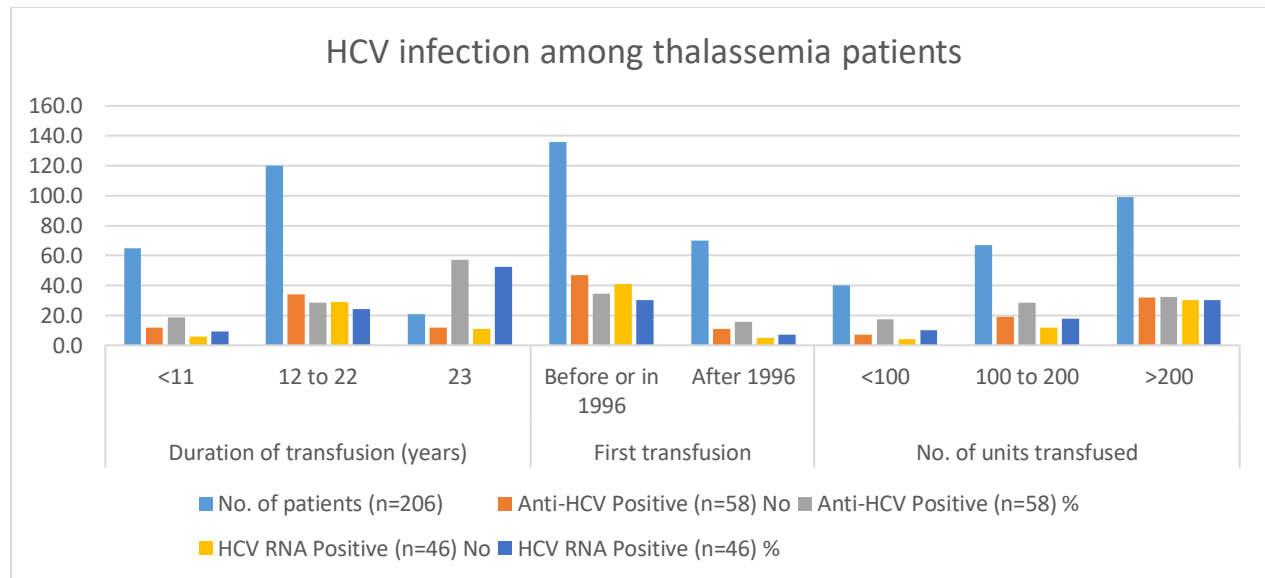
The average age of these patients was much high in comparison with the patients with negative results ( $18.98 \pm 6.65$  versus  $15.47 \pm 6.06$ ). We found no important statistical disparity in the positivity of anti-HCV between male & female patients. Occurrence of this positivity was much high among the patients who got transfusions before the programs of 1996. Detail is available in Table-2. The findings show that the prevalence of anti HCV has an association with long transfusion duration.

The occurrence of RNA of HCV was 22.30% (n: 46). Among 58 positive patients with anti-HCV, 46

patients found positive for the RNA of HCV. The average age of these positive patients was also high in comparison with the negative patients ( $20.17 \pm 6.32$  versus  $15.39 \pm 6.05$ ). The occurrence of RNA of HCV was high in female patients (22.90%) in comparison with the male patients (21.60%), but the disparity was not much important as mentioned in Table-1. There was an important disparity in the occurrence of RNA of HCV between patients who had initiated to get transfusion before 1996 (30.10%) & those patients who received the transfusions after 1996 (7.10%). This occurrence was also high in the patients who received high quantity of transfusions as mentioned in Table-2.

**Table-II: HCV infection among thalassemia patients receiving multiple transfusions**

Factors		No. of patients (n=206)	Anti-HCV Positive (n=58)		p value	HCV RNA Positive (n=46)		p value
			No	%		No	%	
Duration of transfusion (years)	<11	65.0	12.0	18.50	0.0030	6.0	9.20	0.0010
	12 to 22	120.0	34.0	28.30		29.0	24.10	
	23	21.0	12.0	57.10		11.0	52.30	
First transfusion	Before or in	136.0	47.0	34.60	0.0030	41.0	30.10	0.0010
	After 1996	70.0	11.0	15.70		5.0	7.10	
No. of units transfused	<100	40.0	7.0	17.50	0.2000	4.0	10.00	0.0100
	100 to 200	67.0	19.0	28.40		12.0	17.90	
	>200	99.0	32.0	32.30		30.0	30.30	



### DISCUSSION:

More than twenty five thousand patients of thalassemia were available in Pakistan [8]. It is a very serious problem of health in the whole country. This current case work showed that the occurrence of anti-hepatitis C virus in the patients suffering from thalassemia is 28.10%. A very recent case work from the north regions of our country Pakistan displayed the 63.80% occurrence of hepatitis C virus antibody in patients of thalassemia in comparison with 0.50% in blood donors. In that case work, test of confirmatory Immune-blotting was inaction utilizing the positive hepatitis C patients which displayed the 92.60% specimens as positive [9]. Karimi [9] stated seventy three out of four hundred and sixty six children with thalassemia with previous history of transfusions (15.70%) as anti-hepatitis C virus positive.

Past case work on the patients of thalassemia discovered a range from 16% to 64% for the incidence of the infection of HCV [8-10]. This was the first case work in this particular area for the occurrence of HCV infection among the patients of thalassemia. The occurrence of the infection due to hepatitis C virus ranges from 33% to 67.30% in various Arabic countries [11-13]. In comparison with those countries, the occurrence of the disease in this case work is very low. A case work conducted in Egypt concluded 75.0% occurrence of HCV among the patients suffering from thalassemia, the occurrence in the blood donors was 14.50% [14]. But in India with a very less incidence in blood donors (1.780%), the occurrence in the patients of thalassemia was low (25.50%) [15]. Occurrence in this case work was due

to refugees from Afghanistan which was worsening the condition of health in our country [16].

The geographical position, refugees from Afghanistan where there is high prevalence of this infection among various population [13, 17, 18]. The screening of blood donors started in many countries after the availability of the serologic tests in many countries. The findings of this case work showed that positivity of anti-HCV reduced to 15.70% from 34.60% after the method of screening. The prevalence of the RNA of HCV identifiable among patients with negativity for anti-HCV can be an outcome of the immune-suppression with reduced formation of antibodies, or window period for the current condition of infection [19]. In this case work, the average among the positive patients was much high in comparison with the negative patients. The association between anti-hepatitis C virus and RNA of HCV was 79.30%, which is similar result as compared to the findings on other populations as occurrence ranges from 65.0% to 86.0% [20-22]. There can be many factors for not identifying the RNA of HCV as inactivation of RNA of virus at the time of collection of serum, levels of fluctuating viremia etc. [20, 23].

### CONCLUSION:

The findings of this case work conclude that anti-HCV occurrence in the patients suffering from thalassemia in the southern regions of Punjab are not much high in comparison with other neighboring countries. There is reality that the danger of infection due to hepatitis C virus has met its mitigation after the 1996 because of the programs initiating the screening of the blood donors. But still there is need for special attentions and

preventive measures in routine practices to tackle this issue completely.

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