

## Frequency and Association between Different ABO Blood Groups with Hepatitis C

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### ABSTRACT

**Objective:** This study aims to find the frequency and association of hepatitis C with different ABO blood groups.

**Methodology:** This retrospective study of six months duration was conducted at Aziz Fatimah Hospital Faisalabad after approval from the ethical committee. Blood bank data was retrieved and blood reports for all the blood borne diseases were analyzed. Only reports with HCV positive along with their respective blood groups were analyzed by SPSS 22. Frequency and percentages of hepatitis C was estimated. Association of HCV with blood group was determined using chi-square test. p value  $\leq 0.05$  was taken as significant.

**Results:** Data from 1000 reports of screened blood showed 52 (5.2%) reports seropositive positive for HCV. Among these, 15 (28.8%) reports of blood group A showed HCV seropositivity. However, 18 (34.6%) respondents with blood group B were HCV seropositive. HCV cases in blood group AB were 7 (13.5%). There were 12 (23.1%) HCV positive subjects with blood group O.

**Conclusion:** HCV is not significantly associated with blood group.

**KEYWORDS:** Hepatitis C, Blood Borne Diseases, Blood Group.

### INTRODUCTION

Hepatitis C disease is a life threatening disease which is caused by blood-borne Hepacivirus C. It is seeking a global health attention especially in the developing countries where this disease is rapidly spreading day after day. It usually progresses to hepatocellular carcinoma which is definitely responsible for early mortality of the affected subjects. In underdeveloped countries, it always remained a burning health issue among the health authorities due to careless attitude towards health and Hepatitis C management.<sup>1</sup> This is also attributed to low literacy rate and lack of health awareness programs concerning this issue. In Pakistan, its prevalence is 4.8% and is increasing at a whirlwind

rate. It prevails both in community subjects as well as in health care providers.<sup>1,2</sup> It is believed to be the second highest health concerning issue in the world.<sup>3</sup> However, Punjab has the highest prevalence (17%) among the provinces of Pakistan, and major proportion of this high prevalence was from Faisalabad district.<sup>3</sup> In this region, extensive transmission of this disease needs critical understanding of its epidemiology and cost effective prevention and also the treatment interventions. Mounting evidence has suggested an association of ABO blood groups with blood borne infectious diseases but outcomes were different from study to study. It is well documented that certain blood group acts as receptor for attachment of certain viruses and bacteria.<sup>4</sup> Concerning the pathogenesis of HCV and its association, it is believed that membrane of the red blood cells and microorganism interaction is responsible for receptor adherence and response modulation.<sup>5</sup> Due to increasing prevalence of this life threatening condition, it is crucial to take essential steps for the awareness and prevention of hepatitis at community level. Screening for hepatitis at prevalent regions should be adopted on immediate basis in order to fulfill the international target for elimination of HCV. Hence, our study aims to find the association of HCV with different ABO blood groups and to identify the group at more risk for hepatitis C.

### METHODOLOGY

This retrospective study of six month duration was conducted at Aziz Fatimah Hospital, Faisalabad. Ethical approval from the administrative authority was

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taken. Data of blood bank of hospital from July 2018 to November 2018 was retrieved from the central data base record of the hospital. Total 1000 blood reports of screened blood during this duration for all the blood borne diseases were reviewed. Data concerning seropositive tests for hepatitis B surface antigen (HBs Ag), HIV, syphilis, and malaria were excluded. Reports with reactive test for HCV were included in the study. All reactive test reports for HCV along with their respective blood groups were documented for further analysis. Informed consent of the patient was not needed as including patient's data was anonymized.<sup>6</sup> Data was transferred to the SPSS 22 for further analysis. Frequency and percentages of hepatitis C was estimated. Association of HCV with blood group was determined using chi-square test. p value  $\leq 0.05$  was taken as significant.

## RESULTS

During the six month of study duration total 1000 reports of screened blood were retrieved from the blood bank. Only 52 (5.2%) reports were seropositive for HCV out of total 1000 reports. Distribution of hepatitis C among the ABO blood groups are highlighted in table-1. Hepatitis C was most commonly found in subjects with blood group AB followed by blood group A. No association of ABO blood group was noted with hepatitis C. (p value 0.49)

**Table 1: Frequency of Hepatitis C among ABO Blood Groups (n=1000)**

ABO Blood Groups	Hepatitis C (Anti HCV)		
	Frequency n (%)	Seropositive Frequency n (%)	Seronegative Frequency n (%)
A	233 (23.3%)	15 (6.4%)	218 (93.6%)
B	384 (38.4%)	18 (4.6%)	366 (95.4%)
AB	94 (9.4%)	7 (7.4%)	87 (92.6%)
O	289 (28.9%)	12 (4.2%)	277 (95.8%)
p value	0.49		

Statistically significant value at  $p \leq 0.05$

## DISCUSSION

Hepatitis is a disease which is seeking attention especially in developing countries. Pakistan is ranked highest among the affected countries with overall prevalence of 5.46% in Punjab, Sindh: 2.55%, Khyber Pakhtunkhwa: 6.07%, Baluchistan: 25.77%, and Federally Administrated Tribal Areas: 3.37%. Punjab is the 3<sup>rd</sup> highest among these provinces. The most affected district in the province of Punjab is

Faisalabad.<sup>7</sup> Hence, here comes the need to evaluate the reason of speedy spread of HCV particularly in this district and establish if there is any association of this disease with blood group or if it is spreading due to the mere lack of awareness about its epidemiology. Study conducted at Peshawar by Zulfishan Batool and his colleagues found 1.30% HCV in their setting and this was a major difference with the current study showing that data only from one setting showed 5.2% of HCV affected subjects.<sup>4</sup> Our study did not find association of HCV with specific blood group. Similar to our these results, Mohammad Ali F and his colleagues also did not found any significant association of HCV with blood groups.<sup>8</sup> Gao X did systemic review of multiple papers also did not find significant association with blood groups.<sup>9</sup> However, some studies are also available that show that studies conducted in small size population show association of HCV with blood group.<sup>8,10</sup> Sreedhar and his colleagues found high frequency of HCV in blood group O.<sup>11</sup> Contrary to these results, our study showed higher frequency of HCV in blood group AB. However, O blood group had least number of HCV affected subjects. While, Sreedhar et al also showed that there was a least number of HCV seropositive subjects with blood group AB and this was in disagreement to our results.<sup>11</sup>

## CONCLUSION

HCV is more prevalent among the subjects with blood group 'AB' followed by blood group A. However, ABO blood groups are not associated with hepatitis C.

**Funding Source:** None.

**Conflicts of Interest:** None.

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**Author's Contribution:**

<b>Dr. Rana Muhammad Tahir Salam</b>	Data collection and integrity of data. Manuscript writing and approval.
<b>Dr. Rooha Tariq</b>	Statistical analysis, interpretation of results, formulation of tables and manuscript writing.
<b>Dr. Sarwat Jahan</b>	Statistical analysis, interpretation of results, editing and formatting the manuscript.
<b>Dr. Sarwat Bibi</b>	Data collection, integrity of data, manuscript writing, review and approval.
<b>Dr. Humaira Ahmad</b>	Data collection, integrity of data, manuscript writing, review and approval.