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ORIGINAL ARTICLE

Haematological Changes in Hepatitis C (HCV) Patients

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ABSTRACT

Background: Hepatitis C virus infection victimizes around 200 million people globally.
Aim: To evaluate the frequency of haematological abnormalities in HCV infected patients.
Study design: Cross Sectional study.
Methodology: Present study with chronic HCV infection was carried out in the Department of Pathology, CMH, Multan after the Hospital's Ethical Committee approval. All patients (n=175) of HCV positive on ELISA were further investigated with hematological parameters. Venous blood was send to laboratory for complete blood count (CBC). The outcome variables i.e. hematological abnormality as (Yes/No), duration or hepatitis C infection, personal data like age, gender, living area and occupation were noted on the Performa. **Statistical analysis**: SPSS software, version, 26 analyzed the collected data.
Results: All patients (n=139) had a mean age of 32.46 ± 7.35years. In frequency of gender of patients there were 101(57.71%) males and 74(42.29%) females. Mean TLC was 11.43±1.33 x 103µL. Mean Hb% was 10.57±3.41 g/dl. Mean platelet count was 154.27± 25.45 x 103 µL. Frequency of haematological abnormalities in HCV infected patients was found in 47 (26.86%) patients.
Conclusion: We concluded that the frequency of haematological abnormalities in HCV infected patients is quite high.
Keywords: Hepatitis C, Haematological Abnormalities and Thrombocytopenia.

INTRODUCTION

Hepatitis C virus infection victimizes around 200 million people globally. In modern era, this infection is the most common reason for hepatoma and liver transplantation among hepatic patients globally.[1] According to literature review, HCV has 7 genotypes. However, in Pakistan, most common genotype include 3a & 2a[2].

According to one estimate, Pakistan is among heavy burden country for hepatic diseases especially HCV[3]. A systematic review revealed that 6.8% of all population in Pakistan has HCV infection whereas the disease being active in almost 6% of all population. Multiple reasons for its high prevalence include contaminated syringes, barber razor, non-sterilized dental procedures, tattooing and ear piercing in Pakistan[4-7]. Disease is slow in progression but it is quite lethal in consequences chronically. Its complications include liver cancer, cirrhosis and metabolic syndrome causing diabetes mellitus[8,9].

This virus principally replicates in the liver and its cardinal manifestation is progressive hepatic failure from fibrosis[10]. Evidence of its replication was shown by abnormal blood counts in clinic patients with HCV infection[10]. One researcher reported that infected persons have low neutrophil (9%) and platelet counts (13%)[10], however, severity of peripheral blood cell count abnormalities is still a mystery[11,12].

Since its incidence associated with anemia or thrombocytopenia is high in Asia and there is lack of research culture in our society leading to big burden of illness on society. Thus we planned current study to see cytopenias among HCV patients.

The objective of the study was to evaluate the frequency of haematological abnormalities in HCV infected patients.

METHODOLOGY

Present study was carried out in the Department of Pathology, CMH, Multan after the Hospital's Ethical Committee approval. All patients (n=175) of HCV positive on ELISA were further investigated with hematological parameters. Venous blood was send to laboratory for complete blood count (CBC). Various outcome variables like hematological abnormalities (Yes/No), duration of disease and personal data were noted[7]. Current study included HCV^+ patients (both genders) on ELISA. Pregnant patients with pre-existing liver diseases or any malignancy were excluded. Written informed consent was taken.

Data analysis: SPSS v.26 analyzed the data. Age (in years), duration of disease and complete blood count findings were presented as mean±S.D. Parameters like gender, occupation, place of living (rural/urban) and hematological abnormality were presented as frequency and percentages. Outcome variables were stratified and post stratification chi-square test applied with p-value <0.05 as significant.

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RESULTS

Mean TLC was 11.43±1.33x10^3µL. Mean Hb% was 10.57±3.41g/dl. Mean platelet count was 154.27±25.45x10^3µL. The distribution of patients depending on gender, age, place of living, hematological abnormalities and duration of disease for HCV was shown in table-1.

Table 1: Demographic parameters of subjects (n=175)

Parameters	Categories	Frequency	%age
Gender	Males	101	57.71
	Females	74	42.29
Place of living	Rural	67	38.29
	Urban	108	61.71
Hematological abnormalities in HCV+ patients	Yes	47	26.85
	No	128	73.15
Age (years) Mean±SD	18-35	106	60.57
	36-50	69	39.43
	32.46±7.35 years		
Duration of disease (years) Mean±SD	>5	106	60.57
	<5	69	39.43
	5.69±2.21 years		

Among 175 enrolled patients, stratification of hematological abnormality with respect to age groups was shown in table-2.

Table 2: Stratification by Age of Hematological Abnormality

Age (years)	Hematological Abnormality		P- value
	Yes	No	
18-35	31	75	0.377
36-50	16	53	

Among 175 enrolled patients, stratification of hematological abnormality with respect to gender was shown in table-3.

Table 3: Gender and hematological abnormalities relationship among HCV patients

Gender	Hematological Abnormality		P- value
	Yes	No	
Male	30	71	0.321
Female	17	57	

The relationship between Duration of disease and Hematological abnormalities was shown in table-4.

Table-4: Duration of disease affecting hematological abnormalities (n=175)

Duration of Disease (years)	Hematological Abnormality		P- value
	Yes	No	
>5	30	76	0.593
<5	17	52	

DISCUSSION

It has been estimated that as the incidence of this disease is increasing at an alarming rate, it will increase mortality among people in coming 20–30 years[13]. Its not only affects liver but also causes hematological changes thus causing cytopenias. Thus it decreases all cell lines unfortunately thus causing anemia, neutropenia, leukopenia, and thrombocytopenia among its victims[14-16].

Our methodology of enrollment was in line with many previous studies that enrolled both males and females as subjects. Our results depicted that females (42.29%) were less in comparison to males (57.71%) as shown in (table-1) thus indicating that male gender suffers more from this disease across Pakistani population as well as globally[8].

Our results showed that patients (n=47) suffered hematological abnormalities in HCV+ patients in present study (26.86%). Similar results were shown by one researcher who reported that infected persons have low neutrophil (9%) and platelet counts (13%).[10] In another study, 30 patients were enrolled. Their CBC results showed that patients (n=13) had low platelets (<150,000/µL) while rest of the patients had normal platelet count. Hence, it was concluded that thrombocytopenia was found to be 43.3% among hepatitis C patients in their study[17]. Our results were similar to the above mentioned study.

One previous study reported that 20% of HCV patients developed anemia (Hb < 10 g/dl) on treatment. They concluded that females who were older than 60 years developed anemia.[18] Our results were in line with above mentioned study that reported that females suffered more anemia than males (p< 0.05). However, there was insignificant difference between frequency of anemia in two age groups.

It has been estimated that treatment-related thrombocytopenia due to conventional antiviral therapy (PEG-IFN) is evident by many studies. It reduces platelet count in patients significantly thus estimated thrombocytopenia develops by 8.8–10%[19]. Thus hematological findings in HCV patients retain much significance in prognosis.

Limitations: Limited funds with resources and short duration of study were the limitations.

CONCLUSION

It was concluded that the frequency of hematological abnormalities in HCV infected patients was quite high. So, we recommend that there should be early screening of haematological abnormalities in hepatitis C patients for taking timely treatment which will in turn reduce the morbidity and mortality of our population.

Authors' Contribution: QUA&HZ: Conceptualized the study, analyzed the data, and formulated the initial draft, **AH&SK:** Contributed to the proof reading, **TL:** Collected data,

Conflict of Interest: None to declare

Financial Disclosure: None

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