

Rheumatic Manifestation in Patients Presenting with Hepatitis C Virus (HCV) in a Tertiary Care Hospital

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ABSTRACT

Objective: To determine the frequency of Rheumatic manifestation in hepatitis C virus (HCV) infected patients.

Study Design: Cross sectional study

Place and Duration: This study was conducted at OPD & Indoor patients of Medicine Department, Mayo Hospital, Lahore for a duration of 6 months from 28.05.2015 to 28.11.2015.

Material And Methods: With approval from hospital ethical committee, 240 patients of age 20 to 60 years of either gender presenting with confirmed diagnosis of HCV diagnosed at least 6 months ago were included for the study with 95% confidence level, 6% margin of error and expected percentage of rheumatic manifestation 31% in patients. Data was entered in SPSS version 20 and analyzed through it as well. Quantitative variables like duration of HCV and age were calculated as standard deviation and mean. While qualitative variables like rheumatic manifestations such as arthritis or arthralgia, and gender were calculated as percentage and frequency. Stratification of data was done for gender, age of the patients, HCV duration and treatment taken for HCV. Post-stratification, chi-square was applied to compare stratified group. P-value ≤ 0.05 was taken as significant.

Results: The mean age of patients in the study was 40.92 ± 12.20 years. The ratio of female to male patients was 1:2.3. 91.67% of the patients were on treatment for HCV infection and among them rheumatic manifestations were observed in 95 (39.6%) of patients. Statistically, there was significant difference between the rheumatic manifestation and patients' age i.e. p-value = 0.030

Conclusion: The study thus concluded that the prevalence of rheumatic manifestation was 39.6%, arthralgia was 15.4% and arthritis was 10% in patients presenting with HCV.

Keywords: Hepatitis C virus, HCV, Clinical Manifestation, Rheumatic, Arthritis

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INTRODUCTION

Hepatitis C virus (HCV) has association with autoimmune phenomena. Since HCV infection can be accompanied by or be the cause of a number of autoimmune disorders, it is therefore suggested that HCV infection should be considered as one of the possible causes of rheumatological symptoms which remain unexplained in some patients.¹

Comparing to other chronic viral infections, Hepatitis C virus (HCV) infection is associated with various rheumatic manifestations as well as autoimmune investigations, such as sialadenitis, arthritis, arthralgias, vasculitis, fatigue, fibromyalgia, vasculitis, etc.²

Arthropathy is a frequent extrahepatic manifestation associated with HCV infection, accounting up to 20% in HCV-infected individuals.³

One study reported that the frequency of arthralgia / arthritis was 35% (out of 49 cases).⁴

But another study reported Rheumatic manifestations up to 31% (28 of 90) in subjects infected with HCV, of which arthralgias were 9%, arthritis was 4%.⁵

Rationale of this study is to assess the frequency of Rheumatic manifestation in patients presenting with hepatitis C virus (HCV). It has been observed in literature that multiple studies have ambiguous results regarding prevalence of rheumatic manifestation. Not much work has been done on finding the prevalence of rheumatic manifestation in HCV patients. Few studies are available which also contain controversy and there is no local evidence available.

MATERIALS AND METHODS

This cross sectional study was conducted at OPD & Indoor patients of Medicine Department, Mayo Hospital, Lahore.

Inclusion Criteria: Patients of age 20 to 60 years of either gender with confirmed diagnosis of HCV (as per operational definition) diagnosed at least 6 months ago.

Exclusion Criteria: Diabetic patients (BSR > 200 mg/dl), hypertensive cases (BP $\geq 140/60$ mmHg)

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- Patients having rheumatic heart disease (on medical record)
- Patients with other comorbid hepatitis like A, B, D, E, Delta or EB virus, etc. (on medical record)
- Primary autoimmune diseases like SLE, polymyositis, scleroderma, etc.
- Primary vasculitis syndrome: polyarteritis nodosa, microscopic polyangiitis, etc.
- Drug induced autoimmune pneumonia (on medical record)

With approval from hospital ethical committee, 240 patients of age 20 to 60 years of either gender presenting with confirmed diagnosis of HCV (HCV RNA >15 IU/mL positive on PCR) diagnosed at least 6 months ago were included for the study with 95% confidence level, 6% margin of error and expected percentage of rheumatic manifestation 31% in patients. Data was entered in SPSS version 20 and analyzed through it as well. Quantitative variables like duration of HCV and age were calculated as standard deviation and mean. While qualitative variables like rheumatic manifestations (3 or more of these in ≥ 5 joints i.e. joint pain, swollen joints, joint stiffness, redness, warmth, tenderness, and deformity on clinical examination), and gender were calculated as percentage and frequency. Stratification of data was done for gender, age of the patients, HCV duration and treatment taken for HCV. Post-stratification, chi-square was applied to compare stratified group. P-value ≤ 0.05 was taken as significant.

RESULTS

In the study, a total 240 cases were enrolled. The mean age of the patients was 40.92 ± 12.20 years with maximum and minimum ages of 60 & 20 years, respectively. Table#1

The study results showed that the mean duration of HCV of patients was 3.77 ± 2.24 years with maximum and minimum duration of 9 & 1 years, respectively. Table#1

In our study, male patients were 70.42% while female patients were 29.58%. The ratio of female patients to male patients was 1:2.3. Fig#1

In our study, 91.67% of the patients were with treatment while without treatment patients were 8.33%. Fig#2

In the study, 95 (39.6%) patients showed the rheumatic manifestation while it was not shown by 145 (60.4%) patients. Table#2

In this study, 91 patients of age < 35 years, rheumatic manifestation was found in 44 cases while 47 cases were normal. Similarly, in 149 patients of ≥ 35 years, rheumatic manifestation was observed in 51 cases while 98 cases were normal. Statistically there was significant difference in the age of patients and rheumatic manifestation i.e. p-value = 0.030 Table#3

The study also showed that the male patients were 169 in which rheumatic manifestation was found in 69 cases and it was not found 100 cases, similarly female

patients were 71 in which rheumatic manifestation was observed in 26 cases and it was not observed in 45 cases. Therefore, there was insignificant difference statistically between the sex and rheumatic manifestation i.e. p-value = 0.54 Table#3

In this study, patients with less than 5 years HCV duration patients were 191 in which rheumatic manifestation was found in 71 cases and it was not found 120 cases, similarly above 5 years HCV duration patients were 49 in which rheumatic manifestation was observed in 24 cases and it was not observed in 25 cases. There was significant difference statistically between the HCV duration and rheumatic manifestation i.e. p-value = 0.13 Table#4.

Table No.1: Descriptive statistics of Age (years) & Duration of HCV

Age (years)	N	240	HCV duration (years)	N	240
	Mean	40.92		Mean	3.77
	SD	12.20		SD	2.24
	Minimum	20.00		Minimum	1.00
	Maximum	60.00		Maximum	9.00

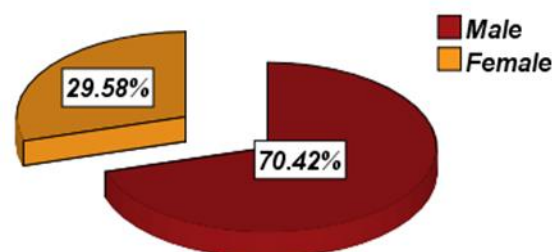


Figure No.1: Frequency distribution of gender

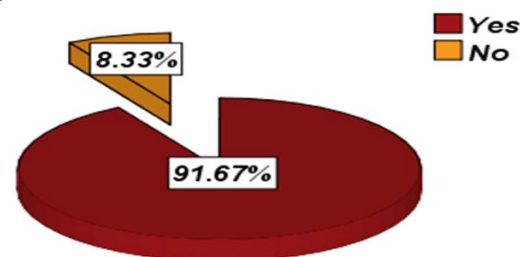


Figure No.2: Frequency distribution of treatment

Table No.2: Frequency distribution of rheumatic manifestation

		Frequency	Percent
Rheumatic manifestation	Yes	95	39.6
	No	145	60.4
	Total	240	100.0

The study results showed that the patients with treatment were 220 in which rheumatic manifestation was found in 87 cases and it was not found 133 cases, similarly the patients without treatment were 20 in which rheumatic manifestation was observed in 8 cases and it was not observed in 12 cases. There was

insignificant difference statistically between the treatment of the HCV and rheumatic manifestation i.e., p-value=0.96 Table#4.

Table No.3: Comparison of rheumatic manifestation in different age groups& both genders

		Rheumatic manifestation		Total
		Yes	No	
Age (years)	Below 35	44	47	91
	Above 35	51	98	149
Total		95	145	240
Sex	Male	69	100	169
	Female	26	45	71
Total		95	145	240

Different Age Groups: Chi value=4.71&P-value=0.030 (Significant)

Both Genders: Chi value=0.37&P-value=0.54 (Insignificant)

Table No.4: Comparison of rheumatic manifestation according to HCV duration& Treatment

		Rheumatic manifestation		Total
		Yes	No	
HCV duration	Below 5	71	120	191
	Above 5	24	25	49
Total		95	145	240
Treatment	Yes	87	133	220
	No	8	12	20
Total		95	145	240

For HCV Duration: Chi value=2.27&P-value=0.13 (Insignificant)

For Treatment: Chi value=0.002&P-value=0.96 (Insignificant)

DISCUSSION

Hepatitis C virus infection is an important public health issue all over the globe. Around 170 million people worldwide have been infected with it since it was discovered (1989). In most of the developed countries, it has the prevalence of under 3%, but in Pakistan it ranges between 4-7%.^{6, 7} The treatment of HCV-related arthritis is challenging. Arthralgia is a frequent symptom in HCV infection.⁸

In this study the patients with treatment were 91.67%. The rheumatic manifestations were observed in 95 (39.6%) patients. Statistically there was significant difference between patients' age and rheumatic manifestation i.e. p-value=0.030.

A study by Sabiha Anis et al⁹ showed that the arthritis was in negative HCV patients was 3 (30%) patients and in positive HCV patients the arthritis was found in 9 (53%) patients. But, insignificant difference was seen

statistically between the arthritis of the patients and the study groups, in this study. i.e., p-value=0.177

A prospective study has shown that 20% of patients infected with HCV suffer from arthralgia during a 1-year follow-up period.¹⁰

RF positivity is approximately 70% to 80% in RA patients, but in HCV-associated arthritis, this positivity is between 54% and 82%.¹¹

Lovy MR et al¹² reported hepatitis C infection related rheumatic manifestations carry a close impression of rheumatoid arthritis. They concluded that the rheumatic manifestations of Hepatitis C infection can be difficult to distinguish from that of RA.

One study reported that the frequency of arthralgia / arthritis was 35% (out of 49 cases).⁴

But another study reported Rheumatic manifestations up to 31% (28 of 90) in subjects infected with HCV, of which arthralgias were 9%, arthritis was 4%.⁵

One study showed that different rheumatologic manifestations, such as sicca syndrome, vasculitis, arthritis and arthralgia, are associated with the HCV infection.¹³

Many studies have reported that rheumatoid arthritis (which is a signature mark for rheumatic diseases) affected patients have high HCV infection prevalence.

In one study HCV antibodies were found in 23 (7.6%) of patients with RA, and among these, active infection by HCV was seen in 7 (2.3%) patients.⁸ But, contradictory results were also described.¹⁴

To note, arthritis is less frequently associated with HCV infection as compared to arthralgia,^{15,16} but different studies have reported patients with long standing polyarthritis, who meet American College of Rheumatology (ACR) criteria for RA were affected with HCV infection.^{12, 17}

Cacoub et al.¹⁸ reported a 19% prevalence in a large population of patients with HCV infection. A frequent manifestation of rheumatism in long standing HCV infected patients is arthralgia.

CONCLUSION

Our study results concluded that the prevalence of rheumatic manifestation was 39.6%, in patients presenting with HCV. Now it has been proved that the frequency of rheumatic manifestations is high among HCV patients in local population. As well as, we have got local evidence which we will apply in local setting now.

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Author's Contribution:

Concept & Design of Study:	Aneeqa Ilyas
Drafting:	Umair Ashfaq
Data Analysis:	Umair Ashfaq

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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