

Research Article**Frequency of Poly-Arthropathy in HCV Positive Patients
with Positive RA Factor**

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ABSTRACT

Objective: Aim of the research was the determination of the Rheumatoid Factor (RF) frequency in Hepatitis C infection (HCV) patients and its correlation with poly-arthropathy.

Study Design: Cross-sectional Research Study.

Place and Duration of Study: Research was carried out at DHQ Hospital Gujranwala, in the time span of October, 2017 to March, 2018.

Material and Methods: Our research sample was 207 confirm patients of Hepatitis C infection with the positive HCV RNA and anti-HCV antibodies through PCR qualitative having poly-arthropathy were made a part of the research. The RF screening of these patients was carried out through immune-chromatography with the help of RF Latex assay kit.

Results: In the total sample male to female ratio was respectively 138 males (66.67%) and 69 females (33.33%). Range of the age in the patients was in the limit of 21 – 55 years with the mean age as (44.29 ± 4.61) years. The youngest age was 21; whereas the eldest patient's age was 55 years in the research sample. Majority if the sample population was in the age group of 36 – 45 years as 97 patients (47%). The rate of RF positive was observed in the 88 patients (42.51%) and negative incidence was observed in 119 patients (57.49%) being affected by Hepatitis C infection related with the poly-arthropathy. RF frequency of the female cases was observed as 66 cases (48%) and in the male cases it was observed as 22 patients (32%) with a significant p-value observed as (0.0367), which was dominant in females in comparison to the male cases.

Conclusion: Rheumatoid Factor (RF) detection is of less use for the diagnosis of the patients' coexisting RA in the cases of chronic HCV infection due to an increased percentage of the RF serum activity.

Keywords: Arthropathy, Rheumatoid factor and Hepatitis C (HCV).

INTRODUCTION

A global affected strength is 180 million having Hepatitis C virus (HCV) infection and its prevalence rate is 2%. Most of the diagnosed patients are asymptomatic diagnosed through incidental serology in the developed disease of the

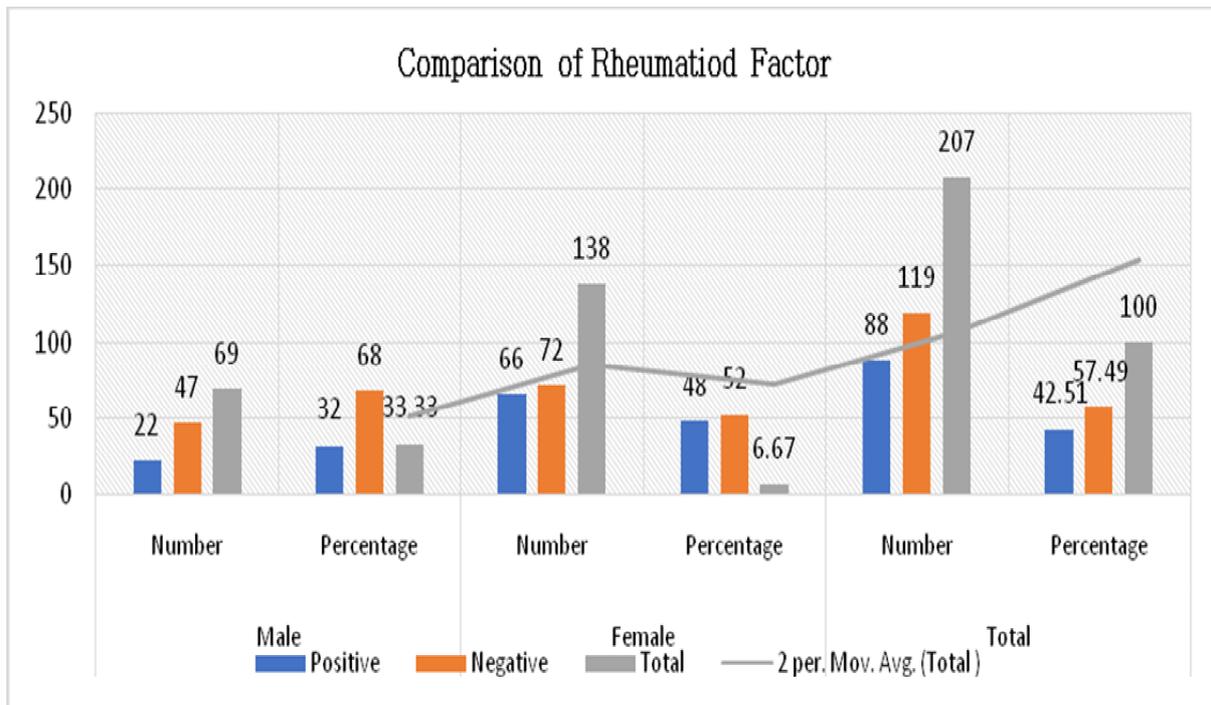
liver. However, seventy percent of the total affected strength has an association with the wide spread manifestations of the clinic affected through numerous organs and systems such as extra-hepatic chronic HCV infection (EHM)

manifestations[1]. Most common among these EHM is rheumatologically manifestation. No specific pattern association is observed in the HCV association with arthropathy (HCVrA), which ranges from polyarthralgia's to arthritis's. Two subsets present the later through clinical manifestations; symmetrical polyarthritis (SP) and intermittent mono-oligo arthritis (IMO). The association of the intermittent mono-oligo arthritis (IMO) is observed with the incidence of cryoglobulinemia and also presented classically involvement of larger joints which involve specifically knee and hip joints including palpable purpura and Raynaud's phenomenon[2]. On the other hand, polyarthritis presents clinical features same as rheumatoid arthritis. RA clinical course is extended with remissions and intermittent exacerbations. Mostly, RA classic clinical picture is not completely helping for the diagnosis and there is also no diagnosis whether radiological,

serologic and clinical available for the certain RA diagnosis. In the case of the rheumatic diseases diagnosis is based on the signs and symptoms such as stiffness at morning, joints tenderness and swelling, increase in ESR and Rheumatoid Factor (RF) detection. In the same way, HCVrA clinical presentation are also present. HCVrA predominant clinical observations include small joint synovitis, tenosynovitis, symmetrical arthritis, small joints of wrist and hand involvement. Erythrocyte Sedimentation Rate is increased in the fifty percent of the cases and almost two third face morning stiffness which is recovered after the time span of 1 hour. Levels of the interleukin (IL)-6 levels are increased in the HCV associated arthritis and rheumatoid, playing the major part in both of the said factors[3]. However, contrary to RA, HCVrA runs sub cutaneous nodules and benign course, deformities and joint erosion are not evidenced.

Table-I: Comparison of Rheumatoid Factor in Male and Female patients with Hepatitis C infection associated Polyarthropathy.

RF	Male		Female		Total		P-Value
	Number	Percentage	Number	Percentage	Number	Percentage	
Positive	22	32	66	48	88	42.51	0.0367
Negative	47	68	72	52	119	57.49	
Total	69	33.33	138	6.67	207	100	



HCV infection is also caused due to the autoantibodies production including Rheumatoid Factor (RF) considered as the diagnostic part for RA common serology marker. RF frequency and reactivity increase with the involvement of articular that is observed in the HCV patients as (37 – 81%). However, presence of RF is observed in the HCV patients as (9.7%) when there is no arthropathy[4]. Differentiation of the HCV-polyarthrititis and concurrent RA is difficult through clinical means and also becomes challenge in some of the cases. Research aims at the frequency determination and clinical association about RF in the Pakistani background in the patients having chronic HCV associated to poly-arthropathy to avoid any possible flawed RA diagnosis.

MATERIAL AND METHODS

Our research was by design cross-sectional and it was carried out at DHQ Hospital Gujranwala from October, 2017 to March, 2018 in the tertiary healthcare settings. We calculated the size of the sample through WHO sample calculator with 95% confidence level, 5% as absolute precision and 60% anticipated prevalence. The range of the age in the total sample of 207 patients was 21 – 55 years with 22 as the lowest limit and 55 as the highest age limit. Consecutive sampling technique was used for the sample collection and every patient visiting OPD was selected who fulfilled the set criteria of the research. Research was started after the formal ethical approval of the hospital and informed written consent of the

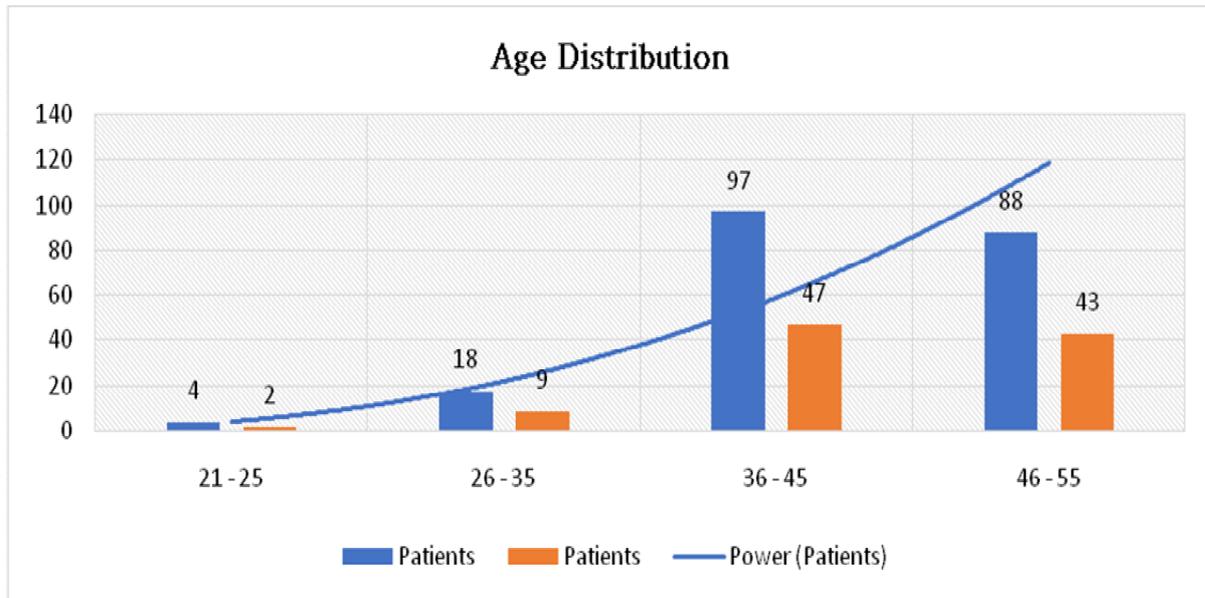
patients. We identified every patient with the designated and assigned identity number or serial number. Physical examination and detailed history was also documented including necessary information such as name, hospital ID and age of the participants. The RF screening of these patients was carried out through immune-chromatography with the help of RF Latex assay kit. SPSS-18 was used for the data entry and analysis. Quantitative and qualitative variables including mean, SD, gender, age and RF were also calculated, variables were compared through the application of Chi-Square Test and significant p-value was observed as (<0.05).

RESULTS

In the total sample male to female ratio was respectively 138 males (66.67%) and 69 females (33.33%). Range of the age in the patients was in the limit of 21 – 55 years with the mean age as (44.29 ± 4.61) years. The youngest age was 21; whereas the eldest patient’s age was 55 years in the research sample. Majority if the sample population was in the age group of 36 – 45 years as 97 patients (47%). The rate of RF positive was observed in the 88 patients (42.51%) and negative incidence was observed in 119 patients (57.49%) being affected by Hepatitis C infection related with the poly-arthropathy. RF frequency of the female cases was observed as 66 cases (48%) and in the male cases it was observed as 22 patients (32%) with a significant p-value observed as (0.0367), which was dominant in females in comparison to the male cases.

Table-II: Age Distribution

Age	Patients	
	Number	Percentage
21 - 25	4	2
26 - 35	18	9
36 - 45	97	47
46 - 55	88	43



DISCUSSION

Common extrahepatic features were observed in the prevalence rate as seventy percent in the HCV patients and most repeated complications were the articular manifestations in the chronic polyarthritis that impersonate RA[5]. Several research studies ascertain the association of HCV with the RA pathogenesis. However, this association of HCV and RA is casual because HCV was observed only in the 0.45% of RA.HCV cases[6], which induced immuno-logical disorders in host resulting auto antibodies information's which included RF, that has an association to the genetic tendency and on the other hand, not dependent on the viral load and not affecting antiviral treatment[7]. Production of the antibodies is because of the immune reactions between viral epitopes polyprotein which is resembling to the antigen of human protein that promotes tissue injury and inflammation[8]. HCV infected patients are also at the risk of RA development. According to the outcomes of our research 88 patients (42.51%) presented positive RF and negative RF was presented by the 119 patients (57.49%) having HCV infection associated to the poly-arthropathy[9]. Outcomes also match with the research of Muhammad and his colleagues (2015) as the consistent female dominance was observed in comparison to the males[10]. It is confirmed in our research that

44% patients have a positive serum associated with the HCV and arthropathy having RF as positive[11]. Outcomes are also supporting the 81.8% patients with HCV infection and presenting articular involvement observed from the RF sera reactivity[12]. Similarly, according to the outcomes of an Egyptian research, RF was positive in sixty percent of the HCV patients having poly-arthropathy. Factor involved in the variation may have been the HCV genotype IV, whereas Pakistani regular genotype is II & III which is also supported by the research of Brito-Zeron et al. (2015)[13]. If one of the patient presents rheumatic signs having a positive RF trend, it is to be considered by the clinician that there is a HCV possibility in HCV infection observed with the rheumatic manifestations as part of diagnosis differentials which varies from patient to patient on the basis of diagnosis facilitation and treatment markers such as blood transfusion history, elevated liver enzymes and also may be because of the PCR that is confirm for HCV-RNA[14]. In short, our research was targeted on the correlation of the RF and chronic Hepatitis C linked with the poly-arthropathy and discussed under the relevant clinical manifestations about the RF frequent confirmation in the patients serum that may mislead or confuse, which also limits the ability of the diagnosis about

the HCV association to the symptoms of rheumatic having any possible concurrent RA[15]. RF interpretation needs clear and careful treatment specially HCV association with poly-arthropathy. It is important clinically that an occurrence of arthritis in the patients of HCV is because of the antiviral treatment[16]. Whereas, the treatment of such RA cases will result in liver disease aggravation as disease adjusting anti-Rheumatic drugs are notices and observed for causative agents of Liver fibrosis and Hepatitis[17]. However, contrary to RF, anti-cyclic citrullinated peptide (anti-CCP) antibodies have an absence of the RF link with the HCV associated poly-arthropathy and also show RA high specificity combined with high sensitivity, which is recommended for the differentiation of RA from HCV[18].

CONCLUSION

Rheumatoid Factor (RF) detection is of less use for the diagnosis of the patients' coexisting RA in the cases of chronic HCV infection due to an increased percentage of the RF serum activity.

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