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Research Article

**A RANDOMIZED CONTROL TRIAL TO ASSESS THE
COMMON AND PERSISTENT ASSOCIATION OF THYROID
IRREGULARITY AMONG HCV PATIENTS**¹Dr. Fayyaz Hussain Jarwar, ²Dr. Muhammad Waqar Inaam, ³Dr. Ahmad Nawaz¹Bahawal Victoria Hospital Bahawalpur²Medical Officer T.H.Q Hospital Taunsa, DG Khan³Medical Officer B.H.U Mithra, Yazman, Bahawalpur**Abstract:**

Objectives: The objective of the study was to correlate the commonness of thyroid irregularity in persistent hepatitis C patients, managed with pegylated interferon against interferon alpha.

Materials & Methods: The design of the study randomized controlled trial carried out at Sir Ganga Ram Hospital, Lahore from July 2016 to September 2017. The number of patients declared with hepatitis C by PSR HCV RNA was three hundred and forty including both males and females. All the enrolled patients for the study was in between twenty-five to sixty years of age.

Results: We divide all the patients of our study into two categories. All the patients in category "A" were in between twenty-eight to thirty-three years of age whereas in category "B" the age of patients was in between twenty-seven to forty-four years. Among three hundred and forty patients, the number of male patients was two hundred and one (59.12%) along with one hundred and thirty-nine female patients (40.88%) with a fraction of 2:09:1. The average thyroid energizing hormones range in category "A" was in between (1.19 to 3.43) as well as in category "B" this range was in between (1.48 to 3.44). The number of patients diagnosed with thyroid complication was fifteen (8.82%) in common interferon treatment category along with thirty-one patients (18.24%) in pegylated interferon treatment category ($P = 0.011$).

Conclusion: The researcher declared that all those hepatitis C patients managed with interferon alpha found less commonness of thyroid complication against those who managed with pegylated interferon as well as in both categories' females were in huge numbers.

Keywords: Chronic Hepatitis C (CHC), Pegylated Interferon (peg-IFN), Interferon Alpha (IFN- α) and Thyroid Dysfunction (TD)

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INTRODUCTION:

The researcher found CHC association with Flaviviridae group as well as HCN virion preparation with lone stranded positive RNA genome [1]. Disease due to CHC germs enduring for not less than one hundred and eighty days based upon the existence of its RNA called CHC [2]. Almost 0.15 billion population are affected with CHC. The researcher presented its huge expansion in Egypt (fifteen to twenty percent) along with British as least expansion (0.01 to 0.1%). Whereas the most grievously affected state with chronic hepatitis C on the international level is Pakistan where (4.8%) of the total population got infected with chronic hepatitis C [4, 5]. The blood and its products transmission, utilization of unsanitary acute devices or wound caused by needle stick along with tattooing are a huge hazardous factor for shifting CHC virus [5]. The combined treatment of interferon along with a ribavirin play most important role in CHC management [2]. The antiviral treatment in chronic hepatitis C comprises of interferon has one major drawback in which thyroids are not functioning properly, as a result of this drawback, the dose might be decreased or treatment may be suspended [6]. However, in developed states, the usage of general interferon has been suspended but Pakistan is continuously using it because of its cost-effectiveness [6]. The percentage of development of thyroids working complications alter from one category of the population to another along with treatment forms that are pegylated against general interferon. There is two regional research concerning to improper functioning or not functioning of thyroids with general interferon management, one research presented twenty (18.69%) out of one hundred and seven patients of thyroid irregularity [7]. However other research presented eighteen (18%) thyroid complication patients out of a hundred [8]. Both of above-mentioned studies differ from those presented in research for variant population and that is ten percent of the French group of peoples [9]. The researcher did not find any research for peg-IFN in our native background. In one additional research, the researcher presented a strong connection of peg-IFN with a greater percentage of thyroid complication as compared to general IFN. The percentage of peg-IFN and general IFN was 14.1 % and 6% respectively ($P = 0.0029$) [10].

The purpose of the research was to correlate the commonness of thyroid irregularity in persistent hepatitis C patients, managed with pegylated interferon against interferon alpha in the context of the Pakistani population. The Subcontinental resident peoples are variant from others in reference to

environment, dietary structure of life, genotype along with the percentage of development of thyroid complications as mentioned earlier for interferon (eighteen against six percent). Uniformly there might be variation in the percentage of thyroid irregularity for peg-IFN so this finding is objective of our research. Peg-IFN is an expensive treatment but constantly in practice because of its best performance along with comfort dosing. Our research would assist in established regional testimonials concerning thyroid abnormality due to interferon treatment. So, our findings assist physicians to easily diagnosed and select best management option with respect to Pakistani scenario. Our main objective of conducting this research analyzes which of the two management methodologies would beneficial in suspension of thyroid abnormalities resulted with interferon treatment, so it might be taken as selected treatment.

MATERIAL AND METHODS:

The design of the study randomized controlled trial carried out at Sir Ganga Ram Hospital, Lahore from July 2016 to September 2017. We Included the patients of CHC identified patients with PSR HCV RNA, both males and females, all diagnosed patients having age in between twenty-five to sixty years, minimum Period of interferon treatment for one hundred and eighty days and with general thyroid energizing hormone range (0.4 to 4.0 mU/L). Whereas, we did not include entire earlier managed patients for thyroid complication concluded by the previous record, persistent liver infected patient's i.e. splenomegaly cirrhosis and ascites, diagnosed through the different test in the laboratory as well as through ultrasound, entire earlier interferon managed patients identified by the previous record and all those patients who have the complication of associated tissues such as SLE identified by history. After taking written permission from patients as well as hospital panel of ethical concern, the researcher enrolled three hundred and forty patients for research who comes under required criteria for selection. Researcher divide the whole patients into two categories "A" & "B" and carried out the treatment of category "A" patients with general interferon along with patients of category "B" with Peg-IFN and measured the conclusive finding of his research (the advancement of thyroid complication) after one hundred and eighty days from beginning of interferon treatment. Researcher included all the patients who have below mentioned symptoms of thyroid disorder. If serum thyroid energizing hormone range is greater than 4.0 mU/L, called hypothyroidism.

If serum thyroid energizing hormone range is less than 4.0 mU/L, called hyperthyroidism. The

researcher collected and registered the data of entire patients on early prepared Performa and entered the demographic details of the patient at the time of hospitalization as well as recorded the analyzed data of thyroid function test earlier to the commencement of treatment.

The researcher conducted an analysis of composed data by utilizing SPSS software, presented thyroid energizing hormone range along with age as SD and average and displayed gender along with the existence of thyroid Complication as frequency. The researcher used chi-square for comparison of thyroid complication commonness in both categories and taken P value is equal or less than 0.05 as symbolic, conducted stratification for age and gender as well as execute chi-square test for post-stratification.

RESULTS:

We divide all the patients of our study into two categories. All the patients in category “A” were in between twenty-eight to thirty-three years of age whereas in category “B” the age of patients was in between twenty-seven to forty-four years. Among three hundred and forty patients, the number of male patients was two hundred and one (59.12%) along with one hundred and thirty-nine female patients (40.88%) with a fraction of 2:09:1. The average

thyroid energizing hormones range in category “A” was in between (1.19 to 3.43) as well as in category “B” this range was in between (1.48 to 3.44). The number of patients diagnosed with thyroid complication was fifteen (8.82%) in common interferon treatment category along with thirty-one patients (18.24%) in pegylated interferon treatment category (P = 0.011). The researcher carried out stratification of entire patients in association with sex (gender) and age as well as recorded seven (12.69%), eleven (19.64%), four (8%) eight (16%), two (4.88%) and five (11.90%) patients of thyroid dysfunction in category “A” and “B” having age twenty-five to thirty-five years, thirty-six to forty-five, a forty-six to fifty-five, fifty-six to sixty years appropriately. The thyroid dysfunction differential was not important with P = 0.344 in twenty-five to thirty-five, year age category, P= 0.232 in thirty-five to forty-five-year age category, P = 0.249 in forty-five to fifty-five-year age category, P = 0.033 fifty-five to sixty-year age category respectively.

Researcher diagnosed ninety-one (90.10%) eighty-one (81.0%) and sixty-four (92.75%) and fifty-eight (82.86%) females’ patients of thyroid dysfunction in category “A” and “B” respectively, the differential was again not important with a value of P = 0.066 and 0.075.

Table – I: Group-Wise Age Stratification

| Age | Group A (170) | | Group B (170) | | Total (340) | |
|---------------|---------------|------------|---------------|------------|--------------|------------|
| | Number | Percentage | Number | Percentage | Number | Percentage |
| 25 - 35 Years | 54 | 31.76 | 56 | 32.94 | 110 | 32.35 |
| 36 - 45 Years | 49 | 28.82 | 50 | 29.41 | 99 | 29.12 |
| 46 - 55 Years | 41 | 24.12 | 42 | 24.71 | 83 | 24.41 |
| 56 - 60 Years | 26 | 15.29 | 22 | 12.94 | 48 | 14.12 |
| Mean ± SD | 35.73 ± 7.31 | | 35.91 ± 8.24 | | 35.79 ± 7.86 | |

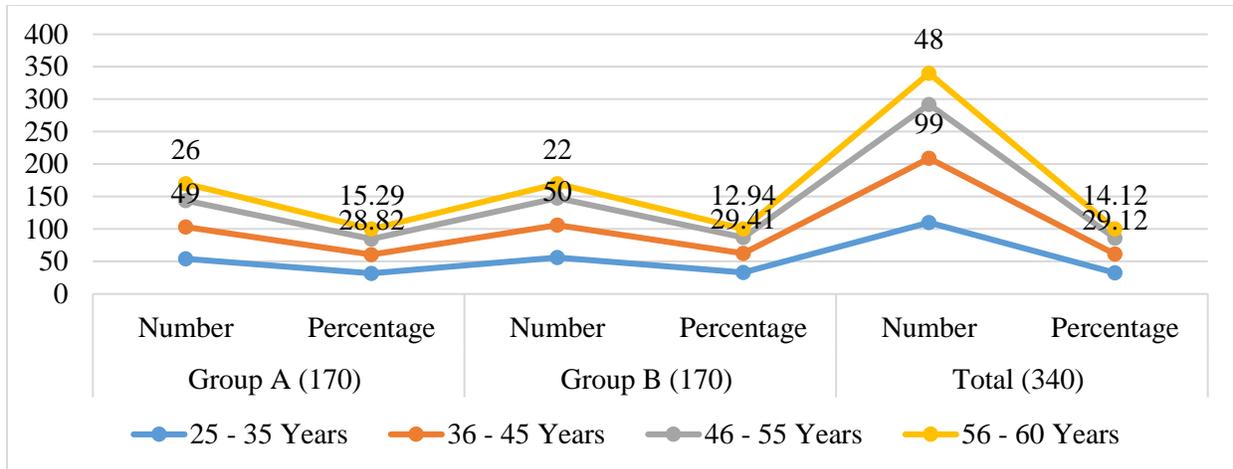


Table – II: Gender Distribution

| Gender | Number | Percentage |
|--------|--------|------------|
| Female | 139 | 40.88 |
| Male | 201 | 59.12 |

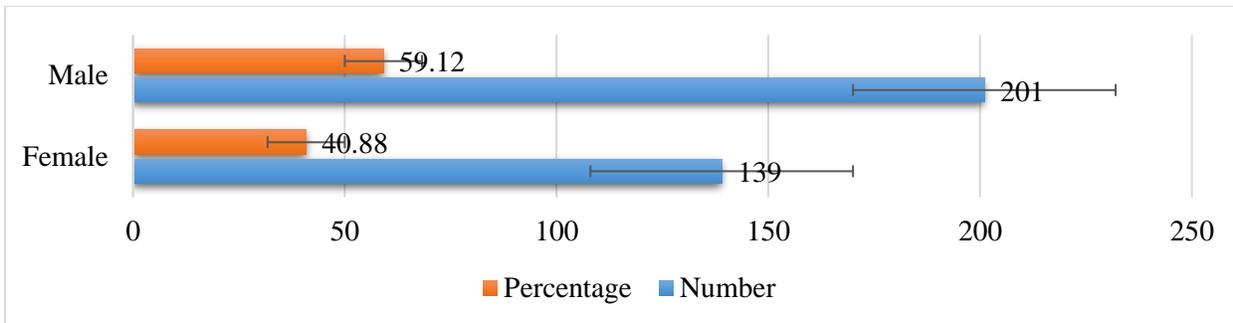


Table – III: Group-Wise Presence and Absence Stratification

| Status | Group - A | | Group - B | |
|---------|-----------|------------|-----------|------------|
| | Number | Percentage | Number | Percentage |
| Present | 15 | 8.82 | 31 | 18.24 |
| Absent | 155 | 91.18 | 139 | 81.76 |

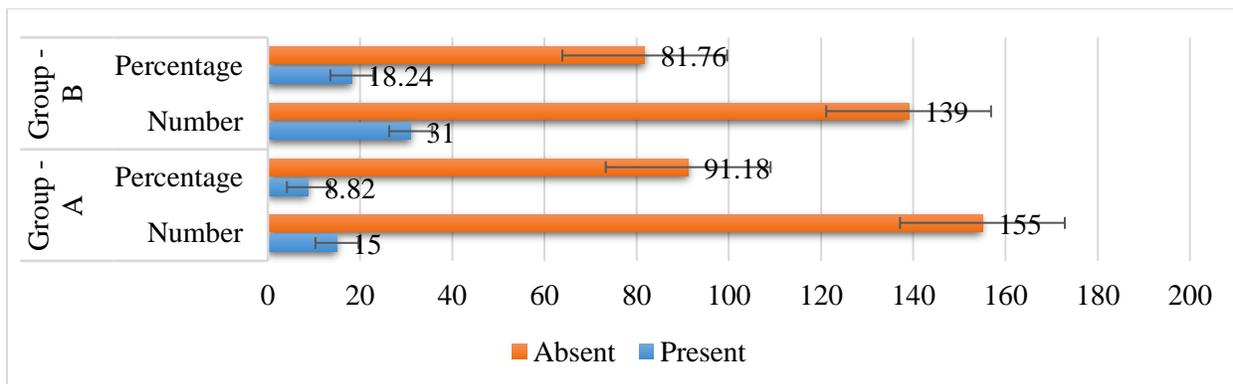
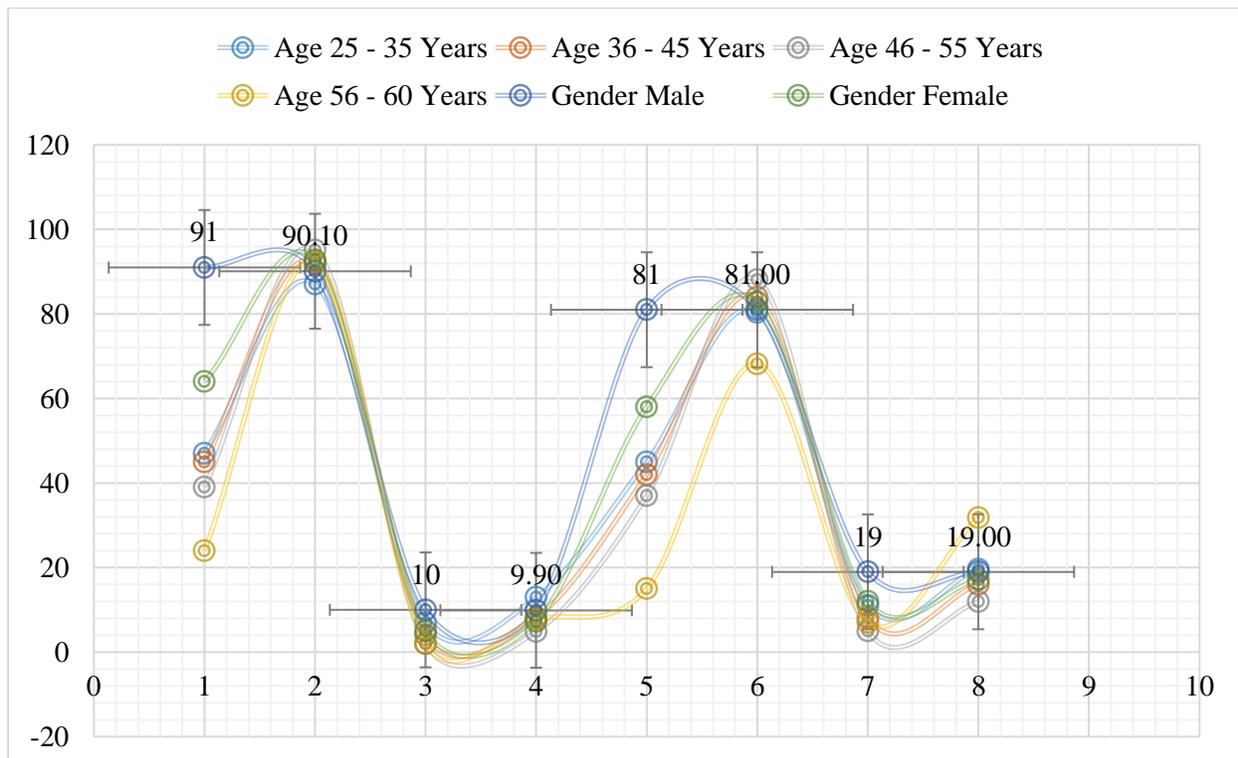


Table – IV: Group-Wise Age and Gender Stratification

| Age and Gender | | | Age | | | | Gender | |
|------------------|---------|------------|---------------|---------------|---------------|---------------|--------|--------|
| | | | 25 - 35 Years | 36 - 45 Years | 46 - 55 Years | 56 - 60 Years | Male | Female |
| Group A (170) | Absent | Number | 47 | 45 | 39 | 24 | 91 | 64 |
| | | Percentage | 87.04 | 91.84 | 95.12 | 92.31 | 90.10 | 92.75 |
| | Present | Number | 7 | 4 | 2 | 2 | 10 | 5 |
| | | Percentage | 12.96 | 8.16 | 4.88 | 7.69 | 9.90 | 7.25 |
| Group B (170) | Absent | Number | 45 | 42 | 37 | 15 | 81 | 58 |
| | | Percentage | 80.36 | 84.00 | 88.10 | 68.18 | 81.00 | 82.86 |
| | Present | Number | 11 | 8 | 5 | 7 | 19 | 12 |
| | | Percentage | 19.64 | 16.00 | 11.90 | 31.82 | 19.00 | 17.14 |
| P-Value | | | 0.344 | 0.232 | 0.249 | 0.033 | 0.066 | 0.075 |

**DISCUSSION:**

As reported by the World Health Organization, the number of patients affected with CHC was almost 0.18 billion as well as 0.35 million deceased each year universally [11]. FDA recommended Telaprevir, Boceprevir and protease inhibitor of the first generation for the treatment of HCV. The two most essential parts of the management were Peg-IFN and Ribavirin, anyhow these two parts have several drawbacks and thyroid dysfunction is considered as it

a significant drawback. The technical aspects of advancement of thyroid dysfunction in those patients, managed with interferon are constantly ambiguous [13]. As well IFN-alpha has direct suppressed reactions on thyroid hormone amalgamation metabolism and absorption along with universal expression of huge histocompatibility substance on thyroid cells [14]. Our research correlates the commonness of thyroid chaos CHC patients, managed with Peg-IFN against interferon alpha. All

the enrolled patients for the study was in between twenty-five to sixty years of age. We divide all the patients of our study into two categories. All the patients in category "A" were in between twenty-eight to thirty-three years of age whereas in category "B" the age of patients was in between twenty-seven to forty-four years and the number of patients in between twenty-five to thirty-five year of age are approximately one hundred and ten. These outcomes are too much with Aziz et al research who presented a mean age of the patients as thirty-three years, which is lesser as compared to Yan z et al who presented average age of forty-one year's [15, 16]. On another aspect, if we correlate our research with outcomes of BM et al study who presented average age of twenty-seven years in his research which is too inferior against our research. Among three hundred and forty patients, the number of male patients was two hundred and one (59.12%) along with one hundred and thirty-nine female patients (40.88%) with a fraction of 2:09:1. Several earlier types of research have also identified huge occurrences in men as compared to women associates [15, 16].

The number of patients diagnosed with thyroid complication was fifteen (8.82%) in common interferon treatment category along with thirty-one patients (18.24%) in pegylated interferon treatment category ($P = 0.011$). Yan Z et al presented eight percent patients of thyroid disorder managed with conventional interferon and 8.6 % with conventional interferon and ribavirin, 13.8% patients treated with the amalgamation of pegylated interferon and ribavirin also promote thyroid dysfunction. The researcher recorded nonimportant thyroid differential in three management plans ($P = 0.145$) KE KM et al also presented minor variation in thyroid dysfunction rate and conventional as well as pegylated interferon managed cases. There is two regional research concerning to improper functioning or not functioning of thyroids with general interferon management, one research presented twenty (18.69%) out of one hundred and seven patients of thyroid irregularity [7]. However other research presented eighteen (18%) thyroid complication patients out of a hundred [8]. Both of above-mentioned studies differ from those presented in research for variant population and that is ten percent of the French group of peoples [9].

The researcher presented a strong connection of peg-IFN with a greater percentage of thyroid complication as compared to general IFN. The percentage of peg-IFN and general IFN was 14.1% and 6% respectively ($P = 0.0029$) [10]. One more research identified thyroid dysfunction as two or

three percent of patients managed with conventional interferon [18]. Moreover, one additional research presented fifteen percent of thyroid dysfunction patients managed with conventional interferon. One research on pegylated interferon managed cases found 21.3% of thyroid dysfunction rate.

CONCLUSION:

The researcher declared that all those hepatitis C patients managed with interferon alpha found less commonness of thyroid complication against those who managed with pegylated interferon as well as in both categories' females were in huge numbers. Therefore, we approved that IFN alpha should be utilized as a major treatment for managing each patient of CHC for the suspension of TD in these specific patients to decrease the bitterness of CHC patients.

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