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THE GRADE OF HEPATITIS C RELATED HEPATIC FIBROSIS AND STEATOSIS

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Abstract:

Objective*: The purpose of this research work is to know the occurrence of abnormal retention of lipids by cells and to conclude it relation with fibrosis grade in the patients of HCV.*

Methodology: *The research was carried out in Mayo Hospital Lahore. The duration of the research was from July 2015 and ended in November 2017. This research work included one hundred and fifty-eight participants with positive polymerase chain reaction (PCR) HCV patients with genotype three. Demographical information of the patients was entered in a special organized Performa. Body mass index of the patients measured and previous background history of diabetes mellitus was also acquired. Biopsy of liver carried out after getting willing from the patients and sent for fibrosis & steatosis grades. T test measured the variables; condition of the retention of lipids was compared with steatosis grade, body mass index and age with the help of Chi square test. The significance value was 0.05.*

Results: *One hundred and fifty-eight patients were the participants of this research work. One hundred and nine were the male participants and forty-nine were the female participants. The average age of the patients was 36.8±9.8. Body mass index was less than twenty-five in eighty-six cases whereas body mass index between twenty-five to thirty was present in fifty-three cases and body mass index greater than thirty was observed in nineteen cases. Seventy-one patients had steatosis. Mild steatosis was available in thirty-three patients, moderate in twenty-six cases and serious in twelve patients. In this research work, we proved a solid connection between level of steatosis and grade of fibrosis. We found no link of body mass index and age with the steatosis level.*

Conclusion: *This research work displayed that high value of steatosis is linked with the aggravation of fibrosis. It also provides the suggestion about the part of steatosis in the increase of liver diseases in the patients of hepatitis C. Efforts should be made to handle the steatosis which can play a vital role in the mitigation of the liver diseases due to HCV.*

Keywords: *HCV, lipids, retention, steatosis, fibrosis, polymerase chain reaction, body mass index.*

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INTRODUCTION:

HCV is most eminent reason of CLD (chronic liver disease) and this disease has infected 170 million people in the whole world [1]. The seriousness of this disease depends upon the symptoms which have different shapes [1]. Most of hepatitis C causing liver injures is immune mediated [2], many histopathological aspects as steatosis of liver; propose cytopathic impact of the virus [3]. Many explanations show that HCV is the main cause of steatosis; it has link with the genotype [3, 4], relation between its seriousness and reproduction level of HCV [5] and departure of this disease as a result of antiviral therapy [6]. Some information shows that the origination and development of normal steatosis found in a large number of HCV patients can be metabolic because its seriousness links with the BMI (body mass index) [7]. Virus is not the only cause of steatosis found in the HCV patient's other factors may exist together.

The occurrence of the liver steatosis is not an astonishing concept in general communities (Fifteen percent) [8]. The effect of the steatosis in the increase of liver disease is very important question as mentioned by many research workers [9]. Group researches on the patients of fatty non-alcoholic liver complication shows that steatosis runs a non-cancerous, non-progressive medical track [10]. But steatosis in HCV patients is also having a little bit amount of necro-inflammation with it. Steatosis takes part in the increase of liver diseases either directly or indirectly. The main objective of this research work was to conclude the occurrence of the steatosis in patients of HCV and to know about the relation between steatosis and other danger aspects for steatosis as body mass index & age of the patients.

METHODOLOGY:

One hundred and fifty-eight are the total participants of this research work. These patients were admitted in Mayo hospital Lahore. The duration of the research was from July 2015 and ended in November 2017. Patients of HCV except genotype-3, hepatitis B, liver complication of autoimmunity [11], patients of hyperlipidaemia: sum of cholesterol/triglycerides was greater than 200 mg/dL, alcoholism, diabetes type 2, fasting glycaemia greater than 126 mg/dL [8] and hypoglycaemic/insulin utilization and usage of the drugs which have the potential for steatosis six months preceding the biopsy of liver were exited from this research work [12]. This research work was carried out with the accord of Helsinki declaration and all the participants gave their willing to participate in this case study. Sex, age, height, negative or positive diabetes and body mass index of each sufferer recorded. The samples of the blood were collected before biopsy for different tests. Specialist performed the biopsy of liver. Fourteen gauge-needles were utilized for this purpose and this whole process was guided by ultrasound.

The sample for biopsy is ideal if it has a size more than ten millimetres [13]. There was no major complication present as hypertension and transfusion of blood. Metavir score for fibrosis was in use to detect the grade of hepatic fibrosis as: F0 = There was no fibrosis; F1 = portal expansion of the fibrosis; F2 = fibrous bridging fibrosis; F3 & F4 [14]. The seriousness of steatosis classified as zero or absent, mild or one, two or normal, three or serious [15]. The patients were separated into three groups, one having body mass index of less than twenty-five, 2nd having body mass index between twenty-five to thirty and 3rd having body mass index of greater than twenty-five [16]. Quantitative data was compared with the help of T test. Chi square test was in use for the analysis of categorical data. SPSS software version sixteen was in use for the analysis of all collected data.

RESULTS:

One hundred and fifty-eight are the total participants of this research work in which one hundred and nine are the male participants and forty-nine are the female participants. The average age of the patients was 36.8±9.8 years. BMI of eighty-six patients was less than 25 kg/m2, body mass index of fifty-three patients was between 25 to 30 kg/m2 and nineteen patients had body mass index of more than 30kg/m2. The biopsy of liver assessed a fibrosis stage zero F0 in twenty-four participants, F1 in fifty participants, F2 in fifty patients, and F3 in twenty-eight patients and F4 in only six patients. Histological evaluations showed that steatosis was available in seventy-one patients of whom normal Steatosis was present in twenty-six patients, mild steatosis was available in thirty-three patients and serious steatosis was present in only twelve patients. Table-1&2 is describing the quantitative and qualitative traits of all the participants.

Table-I: Characteristics of all Patients (Quantitaive)					
Quantitative Variables	**No. of Pts**	**Mean Difference**	**Std. Deviation**	**95% Confidence Interval**	
AGE 158	158	36.81	9.82	35.27	38.35
BMI (kg/m)2		26.13	4.21	25.47	26.79
INR		1.03	0.07	1.02	1.04
PALELET COUNT 109		236.82	82.22	223.90	249.74
SGOT IU/L		56.06	38.85	49.95	62.16
SGPT IU/L		77.76	60.87	68.19	87.32
WEIGHT		64.95	12.47	62.76	67.13

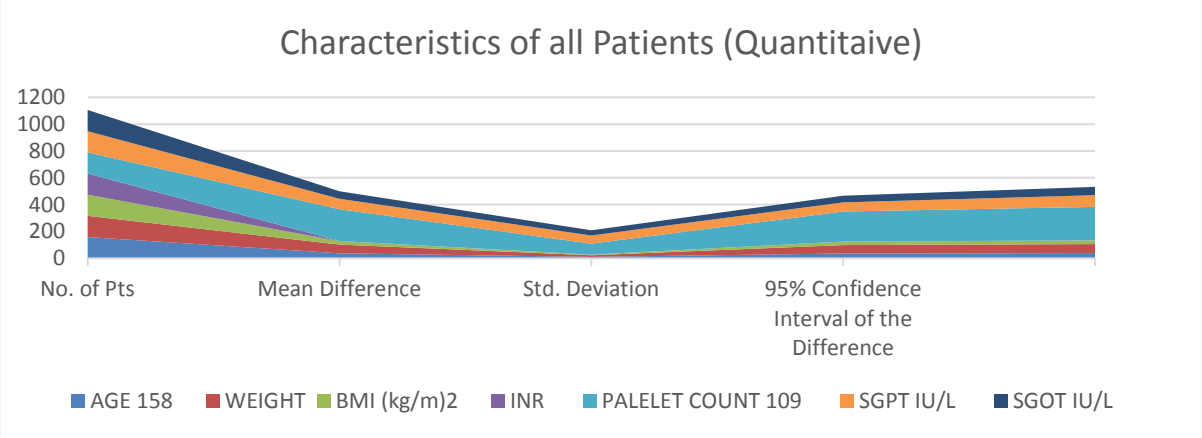


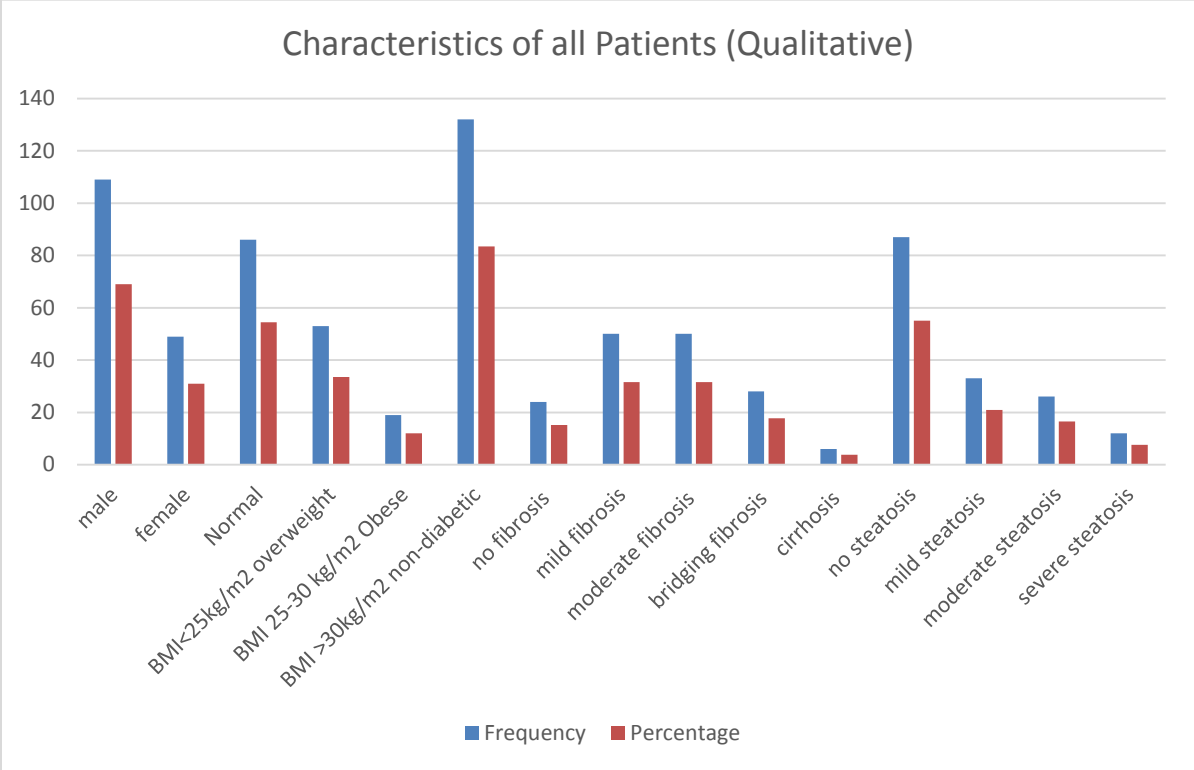
Table-II: Characteristics of all Patients (Qualitative)		
Qualitative Variables	Frequency	Percentage
BMI >30kg/m2 non-diabetic	132.00	83.50
BMI 25-30 kg/m2 Obese	19.00	12.00
BMI<25kg/m2 overweight	53.00	33.50
bridging fibrosis	28.00	17.70
cirrhosis	6.00	3.80
female	49.00	31.00
male	109.00	69.00
mild fibrosis	50.00	31.60
mild steatosis	33.00	20.90
moderate fibrosis	50.00	31.60
moderate steatosis	26.00	16.50
no fibrosis	24.00	15.20
no steatosis	87.00	55.10
Normal	86.00	54.40
severe steatosis	12.00	7.60

Abbreviations:

SGPT = aspartate aminotransferase

SGOT = alanine aminotransferase

BMI= Body Mass Index



A clear connection between amount of steatosis and grade of fibrosis was available in this research work as described in Figure-1 which shows the progression of the both. Thirty-seven Patients with body mass index of less than 25 kg/m2 had mild to serious steatosis, twenty-three patients with body mass index between 25-30 kg/m2 also had mild to serious steatosis and eleven fat patients also had mild to serious steatosis. There was poor connection available between body mass index and steatosis as described in Figure-2. A small relation was available in the stage of steatosis and age.

DISCUSSION:

Steatosis was available in forty-five percent patients of liver biopsies with HCV in this research work. This outcome is similar to the research results of Wyatt [11] who presented steatosis in fifty percent of liver biopsies. Zahid carried out a research on seventy-six patients of HCV and he concluded the presence of steatosis in more than sixty-seven percent patients [17]. Alia Zubair concluded the presence of steatosis in forty-six percent of biopsies in the research work of hundred participants suffering of HCV [18]. Rubbia Brandt concluded that in the patients suffering of HCV, steatosis had the ability to affect the fibrosis progression of liver in a genotype. Steatosis caused by the duplication of the hepatitis C in genotype three patients is normal to serious, links with the fibrosis of liver [19]. Adinolfi concluded that the availability of the important quantity of the steatosis in HCV patients will increase the fibrosis growth [6].

Castera concluded in his recent research work that steatosis deterioration was the single factor linked with the progression of the fibrosis [21]. Leandro carried out a study on three thousand HCV patients and resulted that steatosis of liver had a strong link with the inflammation of liver which led to the fibrosis of liver [22]. The availability of steatosis in HCV patients rely on link between virus interaction and factors associated with host [23]. Steatosis in HCV patients has a connection with fatness, consumption of alchohal, diabetes and high body mass index [24]. The patients of normal to serious steatosis not having other danger aspects have the genotype 3 infection [25]. Steatosis has the ability to enhance the effect of HCV with the creation of free radicals [26]. Poynard in his current work showed that the eminent portion of the progression of fibrosis in HCV patients happen in the patients of more than fifty year of age [27]. Wong also concluded the same

results in his research work in a study carried out on one hundred and forty patients [28].

Mild steatosis is visible in the patients of non-genotype 3, the related reality is that steatosis does not associate with body mass index in HCV infection of genotype 3 [29]. Hourigan concluded in his recent research work that the association between high body mass index and steatosis of liver are the main cause of progression of fibrosis in CHC [30]. Metabolic research works will help to clear this issue in future.

CONCLUSION:

This research work concludes that steatosis is clearly linked with high value of fibrosis in the biopsies of liver. This is a prevailing confirmation that steatosis shows a contact of host features and virus which is imminent factor in the creation of liver fibrosis. So, the patients of steatosis in initial grade are representing the team at a higher danger to acquire fibrosis. Further research works are required to solve the reasons of body mass index and age attached with fibrosis.

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