CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
http://doi.org/10.5281/zenodo.2642518

Available online at: http://www.iajps.com *Research Article*

PATIENTS SUFFERING FROM HCV WITH NO DIABETES: A RESEARCH STUDY ON RESISTANCE OF INSULIN IN THE CONCERNED PATIENTS

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Article Received: February 2019 **Accepted:** March 2019 **Published:** April 2019

Abstract:

Objective: *The main objective of this research work is to find out the resistance of insulin in the patients suffering from infection of non-diabetic HCV with the utilization of the HOMA IR better acknowledged as homeostatic model assessment of insulin resistance.*

Methodology: *The patients found with anti HCV + were the part of this research work. Patients having type 2 diabetes, disorder of thyroid, the presence of the excess fat in the blood, hypercortisolism or some other disorder of infection were not the part of this research work. The record of the age of the patient, his weight, his age & on availability of diabetes maintained. Levels of the fasting glucose of the blood & insulin performed. Standard formulas were in use for the calculation of the BMI & resistance of the insulin. Patients found with resistance of insulin with the utilization of the standard formula HOMA IR of greater than 2.5 were well insulin resistant. SPSS V.18 was in use for the analysis of the collected information.*

Results: *Total 155 patients were the part of this case study. The calculation of the HOMA IR carried out on those patients and its average amount was 2.470 ± 1.3. About fifty one percent (n: 79) found with HOMA IR >2.5 displaying the resistance to insulin.*

Conclusion: *In the under develop countries as Pakistan, the occurrence of HCV infection is very high, the outcome of these infections are not new. We found the resistance to insulin in 51.0% patients suffering from chronic HCV infection.*

Keywords: *Homeostatic, model, assessment, insulin, resistance, HCV, SPSS, diabetes, HCV, infection, methodology, average.*

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Please cite this article in press Hafiz Muhammad Naveed Iqbal et al., ***Patients Suffering From Hcv With No Diabetes: A Research Study On Resistance Of Insulin In The Concerned Patients.,*** *Indo Am. J. P. Sci, 2019; 06(04).*

INTRODUCTION:

The resistance to insulin is very severest abnormality of metabolism in the body of human and it is growing day by day in the whole world. It is a very vital identifier of syndrome of metabolism & it also creates risks for many diseases of the heart. This problem has an association with the infection of HCV [1]. The most frequent reason of the chronic hepatitis in the whole world is HCV and with the passing of the time, it damages the function of the liver. The less level inflammation in the patients suffering from the infection of HCV can cause the determined activation of the immune cell & discharge of the inflammatory cytokine initiating the adipose tissue disruption during metabolism [2].

The steatosis initiated in the persons having infection of HCV is the outcome of the derangements of metabolism that is resistant to insulin and is the main reason of increased fibrosis & loess rate of response in the therapy of HCV infected patients [3, 4]. One recent research work showed the advancement in the IR (insulin resistance) on the therapy on the infection of HCV [5]. Furthermore, resistance to insulin found as the main determinant of the consequence of patients who were getting treatment for the infection due to HCV [6]. Different case studies performed about the vitality of the IR in the administrative methods of HCV infection [7, 8] & its abnormalities [9]. Most of the areas of our country have high occurrence of HCV infection and its medical anomalies in addition with the administrative complications which enhances the requirement to find out the IR as a vital aspect in the strategies of management.

METHODOLOGY:

A sum of 155 patients who were the visitor of outpatient department of medical unit 2 or who got admission in the ward were the part of this case study. All the patients found with infection of HCV. Patients found with the heart diseases, diabetes type 2, disorder of thyroid, and disease of high amount of fat in the blood and infected from other diseases were not the part of this research work. All the information of the patients who were not suffering from the diabetes gathered as age, sex, height and weight of the patients. The calculation of the body mass index for each patient carried out. The samples of the fasting blood gathered to find out the level of the glucose of blood and insulin from a single laboratory. IR monitoring carried out with the help of HOMA IR.

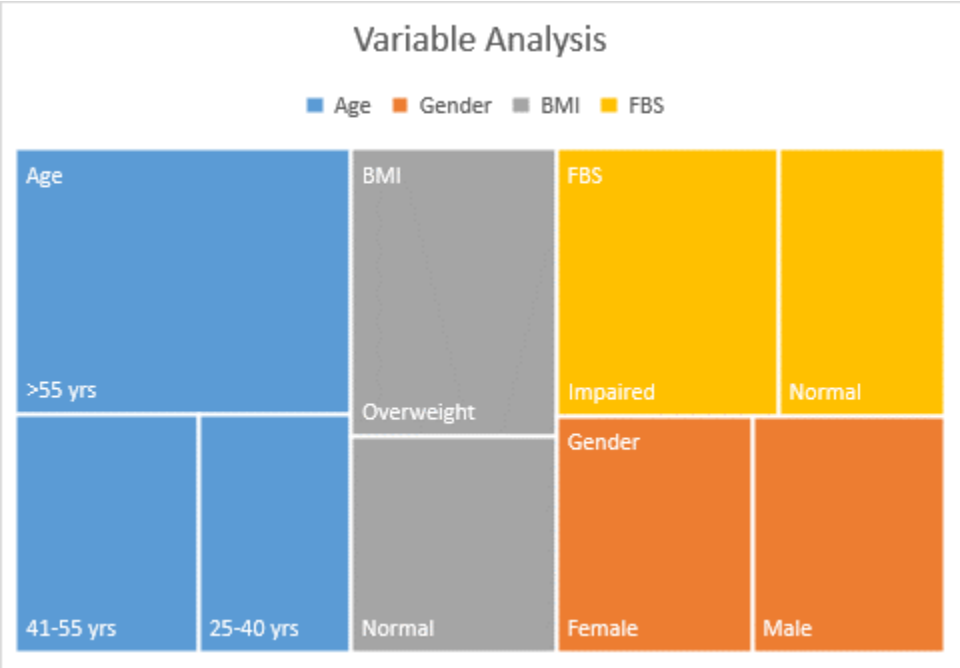
The patients found with HOMA IR of greater than 2.5 fell under the category of insulin resistant. SPSS V.18 was in use for the analysis of he collected information. The calculation of the descriptive statistics conducted for every variables. Average and ± standard deviation monitored for age, body mass index, height, level of insulin and glucose. The calculation of the odds ratio together with 95.0% confidence intervals.

RESULTS:

Total 155 patients with confirm infection of HCV were the participants of this research work. The range of the age of patients was from 18 to 60 years. The average age of the patients was 40.6 years. Most of the patients were in the age groups of 30 to 35 years (37.0%) & 50 to 55 years (20.0%). Eighty seven patients were male and 68 were female patients. The average height of the patients was 1.66 ± 0.08 meters and the average weight of the patients was 63.150 ± 14 Kilogram. The calculation of BMI of every patient carried out. The average body mass index of the patients was 23.820 ± 6.310 kilogram per meter square. Sixty percent (n: 93) patients found with body mass index >25.0 kg / m2, so fatness was common in patients. The average fasting level of glucose among patients was 98.37 mg/dL. The standard deviation of the glucose level was ±19.450 mg/dl. Ten percent patients had glucose level >126 mg/dl, 60.0% patients had normal level & impaired level was present in 30.0% patients.

Table-I: Univariate analysis for different variables.

Variable		Insulin resistant (%)	Odds Ratio	95% CI
Age	25-40 yrs	41	0.12	0.02, 0.89
	41-55 yrs	49	0.52	0.15, 1.06
	>55 yrs	100	1	-
Gender	Male	51	1.01	0.52, 1.92
	Female	52	1	-
BMI	Normal	50	0.5	0.21, 1.16
	Overweight	66.7	1	-
FBS	Normal	50	0.78	0.34, 1.36
	Impaired	66.7	1	-



The average fasting level of insulin was 10.6 ± 6.110 uU/ml in the patients. HOMA IR calculation carried out among all 155 patients, the average amount was 2.470 ± 1.3. Seventy nine patients found with the HOMA IR value >2.5 showing the resistance to insulin. In accordance with the distribution of the sex, same amount of men & women were insulin resistant. Forty four males & 64 females found with insulin resistance which monitored on the base of HOMA IR. Total 66.67% patients who were obese, found in the group of insulin resistance. Table-1 displays the odd ratios for various variables after the univariate examination.

DISCUSSION:

Resistance to insulin is rising epidemic worldwide. One of the risk factor of this disease is infection of HCV. The resistance to insulin in the patients suffering from the infection of HCV is the main reason for the creation of diabetes mellitus in those patients [11]. IR is also a self-governing dangerous aspect with the growth of hepatocellular carcinoma in the patients of HCV infection [12]. It has a high occurrence even in patients with no diabetes as compared to the healthy controls [13]. The patients of HCV infection has initiated the method of steatosis, secondary to insulin resistance. This causes the disturbance in the process of metabolism and it is also a leading factor in the mortality and morbidity of the HCV infected persons [8]. So it is very vital to evaluate the IR in those patients for the administration of the disease.

The therapy of the patients with chronic infection of HCV have influence if there is simultaneous address to the profile of metabolism [14]. The most frequent problems of the liver diseases are IR and diabetes mellitus. The studies show that hepatitis C virus performs a vital role in the disturbance of the metabolism of glucose which lead to IR & diabetes mellitus.

Most of the transverse research works with comparisons showed that HCV infected patients had diabetes mellitus in comparison with the patients of other liver diseases [15]. This was also the outcome of another survey [16]. The link among the infection of HCV & disorders of glucose does not hold false when seeing the incidence of conditions before diabetes as IR. Curing hepatitis C virus infection outcomes in the improvement of IR and shortened happening of diabetes mellitus after the finish of the treatment [17]. The results of this case study were very much in accordance with the outcome of many other international research studies. There was great rate of IR (51.0%) found in the patients suffering from HCV infection. There was an association of many factors with the availability of IR. The patients with > 55 year age & body mass index of > 25 kg/m2 were the victims of IR. This was also similar to the outcomes of many case studies conducted in foreign [18-20]. There was no association of the sex disparity with the presence of IR in this case study.

CONCLUSION:

In the countries which are under development like our country Pakistan, there is a very high rate of complications due to HCV and the outcomes of complications because of this disease are also very frequent. We found resistance of insulin in 51.0% patients suffering from the infection of HCV.

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