

A REVIEW ON THE PREVALENCE OF HEPATITIS C VIRUS IN DIABETIC PATIENTS IN DIFFERENT REGIONS OF PAKISTAN

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ABSTRACT

Diabetes mellitus and Hepatitis C (HCV) are the two main origins of financial and health problems worldwide. In the past decades, we have noticed that both diseases are highly related because of anomalous liver circumstances. But diabetes prevalence apparatus of chronic HCV stagnant is unclear. All cases of chronic HCV virus start with an acute short-term infection. During acute infection, infected people may develop symptoms. 15 - 25 % of people recover from infection without treatment. Others develop a chronic level of infection. It's difficult for the liver to function correctly during this disease. Other factors, such as increasing insulin resistance, can lead to Diabetes. If a patient has Diabetes and HCV, treatment can be more complicated. The cells of the body can become lose insulin sensitivity. This review looks over the connection between Hepatitis c and Diabetes. During this study, Patients infected with HCV, both men and women, were experimented with to check the prevalence of Diabetes. According to this study, diabetes prevalence in HCV-infected patients varies considerably with and without gender boundaries discussed in this article by collecting data from many sources. So, the conclusion is that HCV might be the cause that could tip to Diabetes. If a general comparison is made with the population, people with Diabetes are more likely to contract Hepatitis C. The incidence of HCV is higher among diabetic women of this age group (30-40 years). Interestingly, according to the study, all the seropositive cases were type II diabetes.

Keywords: Hepatitis, Diabetes Mellitus, Prevalence.

1. INTRODUCTION:

HCV and DM are 2 well-being worries that source destroying wellbeing & monetary issues all over the planet. It has been seen in the past that the two sicknesses have a high relationship, which might be because of unusual liver circumstances (Ghany MG et al. 2009)

1.1. Hepatitis C virus (HCV):

Hepatitis is a viral disease that irritates the liver. It can be temporary and permanent and may show symptoms and sometimes no symptoms (Rosen HR 2011). This viral disease can cause liver damage and more difficulties due to different causes such as substantial liquor income, poisoning ingestion, and specific suppressor ailments (Gane EJ 2008). Hepatitis C (HCC) infection disease is a general welfare concern that influences more than 170 million people around the world (Shinn JH et al. 2006).

HCV is a positive RNA infection of a single abandonment in the Flaviviridae family. The HCV communicates more productively by the union of contaminated blood, the contaminated organ transplantation, the transmission of mother to children during childbirth, and the connection with the contaminated blood or the body fluids of a polluted individual. Most liver transfer cases occur

because HCV disease advances to persistent contamination (Vescovo T et al. 2016). HCV has been recognized as one of the primary sources of persistent liver disease with severe splits, such as the final phase of cirrhosis and liver disease (Elfiky AA et al. 2013). Hepatitis C has been exhibited as an encouraging element for Diabetes, but only in patients with risk variables to grow. According to all accounts, people with infection disease by HCV seem to be extended to create T2D. DM is a persistent digestive disease that causes unusual glucose homeostasis (Imam K 2012).

1.2. Historical Background:

Contamination of HCV was perceived as a different disease interestingly in 1975 and was named Hepatitis, not A and not B. Consequently, in 1989, the infection was verified as unsafe after the progression of atomic science. Hepatitis C infection has a place with the family of Hepaci virus and is also separated into 7 significant genotypes (that is to say 1, 2, 3, 4, 5, 6, and 7).

In addition, a comprehensive cross-country review of the predominance of HBV and HCV was perhaps completed in 2007- 2008 (Qureshi H et al. 2010), and an observation framework of the site Hepatitis Sentinel has been observed to be utterly functional since June 2010. Five sentinel destinations based on offices (located in four current capitals and Islamabad) have so far been presented. Be that as it may, due to the region of the restricted watershed of these offices, information related to the occurrence of new cases and examples of continuous transmission and models in most stays in the population.

1.3. Prevalence variation:

The transcendence of HCV contrasts as indicated by the provincial boundaries. Western Europe, the Americas, and Australia are viewed as the locale of common distinction of HCV (<2%). The African and the eastern Mediterranean are locales with the most wonderful HCV transcendence (Lavanchy D. 2009). In Egypt, the triviality of HCV is more surprising than 14%, the most noteworthy in all nations on the planet. Despite how triviality in Asia has been evaluated as somewhat more than 2%, it contrasts impressively between individual countries. Mongolia has the ubiquity of the most fantastic HCV (more prominent than 10%), hauled by Uzbekistan and Pakistan, where, in particular, reports around 6% of the total populace is polluted by HCV (Lavanchy D. 2011). Gathering and looking at the well-being information of a nation is a method for representing medical conditions, distinguishing models, and helping chiefs to define the limits. The study of the transmission of hepatitis disease is deeply rooted in the world. Notwithstanding, the study of the transmission of the disease to Pakistan is poorly characterized. The vast majority of information comes from exams based on the clinic, as there is a lack of local regions (Sulta F et al. 2007). Although the national hepatitis survey has ended, its results have not yet been officially distributed, except for some introductions made by specialists during real gatherings.

1.4. Diabetes mellitus (DM):

DM is a metabolism-related problem that can cause perilous retinopathy, nephropathy, neuropathy, and heart disease (American Diabetes Association, 2012.2014. P. S61-S90). As for the expansion of DM models, an increase of 70% was taken into account in non -industrial countries contrasting with 40% in the countries created in the world (Qidwai W et al. 2010).

Before, DM was linked to the more established Age, but recently, it was also noticed to be high among young people (shera et al. 2007). Consequently, the main objective can be the vocation of nearby individuals.

1.5. Current situation of HCV:

Information on the banality of HCV in Pakistan has recently been deepened (Bosan et al. 2010). The end of the years saw an extended projector among Pakistani specialists on the survey of the examples of twenty HCV and the transfer of recidivism of its genotypes. Somewhere around 86 important exams have been distributed in public and global newspapers since the distribution of the above surveys (2009, 2010). These cooler examinations have not only studied the predominance of HCV in recently revealed regions (such as Azad Kashmir (Abbas S et al. 2009) and Baluchistan (Ahmed F et al. 2012)) but also revealed insight into the association conceivable between underdevelopment and high of HCV the omnipresence (for example, 23.83% of the municipality in the peri-metropolitan region of the largest city in the Karachi country (Janju NZ et al. 2010) and 25.1% in the country's Sindh (Aziz S et al. 2010)). This presents the meaning and the need for coordination of more astonishing reports in a complete refresh exam.

Most importantly, given that some 15% at 45% of patients contaminated by HCV can immediately clean the infection but remain HIV positive for HCV, the results of HIV-positive studies could overestimate the actual weight of the disease. Currently, there is no adequate framework for filtering the general model of HCV and Diabetes in Pakistan and their competition. The well-being of administrative specialists only settles the instructive missions to promote mindfulness among the general population of recent years (Akhtar S et al. 2009), which is not enough.

2. OBJECTIVES:

- The main objective is the Pervasiveness of HCV in Patients with DM of Altered Regions in Pakistan.
- Comparison between male and female HCV-positive diabetic patients.

3. REVIEW OF LITERATURE

3.1. HCV recognition:

The Hepatitis C virus was first recognized as a separate disease entity in 1975 when it was discovered that the majority of transfusion-related Hepatitis was not caused by the only two Hepatitis viruses known at the time, Hepatitis A virus and Hepatitis B virus. At the time, the disease was known as "Non-A & Non-B Hepatitis. It was found that a relation between HCV and T2DM exists.

The fact that most seropositive subjects had Diabetes for 5 years or less and had peripheral stigmata of chronic liver disease suggests that Diabetes may be one of the many extrahepatic manifestations of HCV infection rather than vice versa. The elevated serum SGPT/Alanine Amino Transaminase levels in diabetic subjects should be regarded as a sign that chronic liver disease, particularly HCV infection, constitutes further investigation.

3.2. HCV epidemic conditions in Pakistan:

Pakistan is undergoing an HCV epidemic in historic proportions. One in 20 Pakistanis has already been infected with this infection, playing a significant role in the country's liver disease burden. The prevalence of HCV is high in all risk populations, and health procedures drive most transmission.

Hepatitis C has been exhibited to be a rushing factor for Diabetes, however, just in patients inclined to progress it. Individuals contaminated with HCV appear to be at a higher gamble of creating T2D. DM is a metabolic illness that causes strange glucose homeostasis.

3.3. Primary sources of virus:

Dental techniques were the most widely recognized wellspring of openness (39.7%), trailed by infusions (16.6%), complex medical procedures (16.6%), Diabetes (12.8%), a genetic history of Hepatitis (9%), dialysis (7%), inking (5.1%), and contact with an embittered patient (5.1%), (2.6%). There was a measurably massive distinction in risk factor dissemination. The transmission of hazard factors for obtaining Hepatitis C emphasizes the job of dentistry as a likely course of information.

3.4. Various Studies evaluation:

As indicated by various examinations, we found that HCV disease might prompt the improvement of Diabetes. Patients with HCV contamination have a higher predominance of type 2 diabetes mellitus (2 to 9.4 %) than those with different types of persistent Hepatitis. Hepatitis B (HBV) and Hepatitis C (HCV) are viral kinds of Hepatitis that cause disturbance, aggravation, and expansion of the liver and can cause both intense and ongoing Hepatitis. Hepatitis C infection (HCV) is generally present in Pakistan, and its pervasiveness is supposed to ascend before long, owing fundamentally to the far and comprehensive utilization of hazardous operations.

This infection taints around 6.8 % of everybody. With an expected 170 million HCV-tainted individuals worldwide, this illness represents a rising monetary, social, and well-being trouble. HCV predominance fluctuates by the district.

Western Europe, the Americas, and Australia are considered to have low HCV commonness (under 2%). HCV pervasiveness is most elevated in Africa and the eastern Mediterranean. Hepatitis C infection (HCV) disease is a significant worldwide well-being concern. In Pakistan, roughly 6% of the populace is tainted with HCV. As per a review led by Nadko et al. (2020), the general commonness of HCV contamination among diabetes patients tested was 13.3 %, with 8 (11.3 %) seropositivity got from male subjects and 16 (14.7 %) seropositivity got from females.

(P = 0.511 and P > 0.05)

At the point when the age appropriation was thought of, subjects matured 41-50 years recorded 9 (22.5 %) inspiration (P = 0.238; P > 0.05). When the instructive status of the issues screened was considered, 22 (14.9 %) energy was rescored among the individuals who had finished tertiary training.

(P = 0.574 and P > 0.05)

When risk factors were considered, 7 (18.9%) of seropositive subjects were alcoholic consumers (P value = 0.2621; P > 0.05), while 5 (8.9 %) had a history of sharing sharp objects.

(P = 0.2427 and P 0.05)

This requires a critical routine of evaluating HCV contamination among diabetic patients. Type 2 diabetics have a marginally higher predominance of Hepatitis C disease. This concentrates likewise underlines the significance of state-funded schooling about the connection between HCV contamination and T2DM to forestall complexities in diabetic patients. The predominance of Hepatitis differs from one country to another, and it can likewise change between areas inside a similar country.

3.5. WHO epidemiological approximations:

The force of Hepatitis C is low (1% in Australia, Canada, and northern Europe) and around 1% in nations with a medium endemicity, like the United States and a gigantic piece of Europe. It is high (>2%) in different African, Latin American, Central, and Southeast Asian nations. Late World Health Organization (WHO) suggests that polymerase chain response (PCR) based HCV end ought to be done not exclusively to affirm HCV seropositivity but likewise to see people with dynamic HCV sickness from those with past settled contamination.

Pakistan is an emerging nation of 170 million individuals with low thriving and enlightening standards. As shown by the human progress record of the United Nations, it was arranged as 134th out of 174 nations. In Pakistan, 10 million individuals are thought to be undermined with HCV for even a second. Pervasiveness figures going from 5% to 10% are usually low in these nations. Diabetes and insulin block (IR) can make at any time of HCV contamination. Insulin snags and the improvement of Diabetes in driving forward Hepatitis C patients have been credited to an assortment of structures. HCV pollution and T2DM are both consistent illnesses that cause essential foreboding and mortality.

The reasoning for this study is to finish up the most over-the-top number of T2D in patients ruined with Hepatitis C sickness, as well as the relationship between cirrhosis and type 2 diabetes mellitus seropositive patients; hence, we will fan out a significant association between type 2 diabetes in the HCV seropositive individuals. Hepatitis C infection (HCV) has been seen as a critical wellspring of productive liver sickness, with severe outcomes like cirrhosis and liver undermining advancement.

3.6 Increasing patterns of Diabetes and HCV and Diabetes in Pakistan:

There is currently no effective structure to separate the rising illustration of HCV and Diabetes in Pakistan, as well as their simultaneousness. Over the latest two or three years, prosperity managerial experts created informational missions to augment care, which is horrendously lacking—the inescapability of dynamic HCV sickness anyway sound tenants of Mansehra District. General prosperity experts are, in like manner, taking care of Hepatitis through print and electronic media. Simultaneously gigantic undertakings are supposed to construct the care concerning different bet factors related to HCV transmission.

HCV tainting prompts in half to 80% of individuals. In folks, the power of active HCV tainting was 4 % higher than in females (2 %). The proportionality of HCV power climbs as people age. Its prevalence was generally raised (7.69 %) in people who developed 51 years and more settled, with no verification of tainting found in those who developed 10-20 years. Sickness with Hepatitis C disease (HCV) is a severe general clinical issue, particularly in rising countries like Pakistan.

HCV is a positive-deserted RNA contamination credited to influenza diseases and pesti-viruses. It has been given out to the contamination family Flaviviridae sort Hepaciviral. Diabetes and Hepatitis C have solid areas for a, according to explore.

The high transcendence of dental procedures on people with HCV elements, the importance lack of infectious prevention methodologies required by dental experts as a bet factor for acquiring Hepatitis C and as the sensible wellspring of tainting.

3.7 Statistical studies:

HCV is a blood-borne microorganism that spreads through blood, body discharges, skin infiltration (percutaneous), veins, and mucosal surfaces. In Pakistan, the inescapability of HCV is 4.5-8 %. In 2016, the ordinarity of HCV in diabetic patients represented to be 14.9%. Various assessments show the spreading of Hepatitis C power among Pakistan's locals.

The inspiration driving this study was to choose the inescapability of HCV in diabetic patients of various ages and sexual directions. Diabetes patients had a higher force of Hepatitis C than everyone. HCV is more typical in diabetic females of a particular age (30-40 years).

Diabetic patients are bound to contract Hepatitis C infection (HCV) disease because of the idea of the sickness and its innate inconveniences and successive parenteral openness. HCV contamination, then again, may add to the advancement of Diabetes Mellitus. The observational proof of this affiliation has not been explored at the populace level in Pakistan, and the specific organic components are unidentified. This report aimed to decide the commonness of HCV contamination among grown-up diabetic patients visiting the medical clinic.

The deliberate survey would empower the peruses to comprehend how much the predominance of Hepatitis C in diabetic patients in Pakistan exists. Because of the vital writing examination, a conversation would be framed to figure out the ongoing circumstance of HCV in diabetic patients in various districts of Pakistan.

3.8: Severity of liver disease:

The scope of the reality of liver contamination related to HCV varies, as does the speed of development towards the cirrhotic stage. Generally, they have associated cofactors, similar to mature sex, alcohol usage, overweight, safe status, and co-pollution, relating to disease's effect and earnestness (Umer et al. 2016).

A relationship between cirrhosis and glucose inclination has been known for quite a long time. Unquestionably, cirrhosis itself is "Diabetogenic," with different assessments depicting most cirrhotic as having weakened glucose adaptability. Starting with Allison's social event in 1994, epidemiological evaluations have since unequivocally connected HCV and HCV cirrhosis with DM. The unavoidability of DM, the more significant part made sure to be T2D, was higher among patients with HCV cirrhosis than in patients with cirrhosis because of different etiologies. HCV debasement goes before the affirmation of T2D in as various as 73% of cases, further proposing HCV's pathogenic work in the progress of T2D (Negro et al. 2009)

Information on the unavoidability of HCV in Pakistan has been entirely reviewed. In recent years, Pakistani scientists have drawn a spotlight on assessing HCV conventionality models and

rehashing the stream of its genotypes. Something like 86 necessary appraisals have been circled out in the open and overall diaries since the scattering of audits (Hammerstad et al. 2015).

Since the revelation of HCV, thought has been paid to the relationship between advancing HCV disease and the accompanying progress of Diabetes. The impact of HCV on the liver is exceptionally essential, portrayed by irritating, consistently moderate fibrosis, inducing cirrhosis, and improving carcinoma. Hepatitis C infection spoiling is a key disorder, including lipid handling, oxidative strain, mitochondrial work, quality clarification, and hailing pathways. Around 38% of patients with HCV contamination will develop consequences like one extrahepatic appearance during the illness (Waheed et al. 2009).

3.9: Pervasiveness in Pakistan and worldwide of HCV:

Various examinations to confirm the varieties in the predominance of HCV around the world, the nations are assembled in a worldwide heap of the districts of the illness. HCV is a significant medical issue arising out of emerging nations, incorporating Pakistan with a predominance pace of 4.5% to 8% (second most noteworthy pervasiveness pace of hepatitis C among non-industrial nations) (Atif et al. 2017).

HCV is related to neuropsychiatric protests. Past examinations have related mental adjustments to HCV disease yet frequently included disarray factors in their examples. This study contrasts mental execution among patients, HCV contamination, and a benchmark group while barring different variables that can cause cognitive issues (Lavanchy et al. 2011).

Concentrates on remembered for this survey have also shown a very high commonness of HCV in the country and immature peri-metropolitan regions (up to 25%), featuring the requirement for expanded fixation on this financial layer of the recently ignored populace. While a 2.45% seroprevalence in blood contributors requires prompt measures to decrease the gamble of HCV bonding sent HCV.

The 3A genotype of HCV keeps on being the most well-known subtype contaminating individuals in Pakistan (61.3%). Nonetheless, the two years have expanded the recurrence of the 2A subtype in specific geographic sub-areas in Pakistan. In Khyber Pakhtunkhwa and the Sindh areas, 2A was the second broadest genotype (17.3% and 11.3%, separately). While the development of the dispersion of frequencies of different genotypes requires expanded significance on research on new helpful examples, the proof of a high nosocomial transmission requires prompt measures pointed toward ensuring safe clinical practices (Hajarizadeh et al. 2013).

3.10: Major global health issue:

HCV disease is a significant worldwide medical condition, with a developing predominance in non-industrial nations like Pakistan. In Pakistan, around 10 million individuals are contaminated with HCV. Individuals with different HCV genotypes can show variable clinical appearances, the seriousness of the liver infection, and the reaction to interferon remedial intercessions. Notably, there is a connection between HCV 3A and steatosis. Although the component hidden in the above interface is dependably under study, certain examination has been situated to comprehend why HCV 3A is so broad in the steatosis prompted by HCV. In this audit, T2DM is focused on male and female patients of Lady Reading (LRH), Peshawar Hospital. The blood trail of outdoor

patients separated in LRH PCR labs from December 2014 to April 2015. A gigantic prevalence of Diabetes in males and women spoiled with hepatitis C was seen during this survey. By and large, 1311 cases were dynamically perused up for the HCV per qPCR, of which 212 cases were viewed as sure.

The number of male people (57.75%) with HCV was higher than that of females (42.93%). 128 cases were kept positive in the Age get- together of 30 to 40 years, while only 32 cases were kept positive in the age pack from 40 to 50 years. In the younger people from 20 to 30 years old, 52 cases have been recorded, yet in all age social occasions, HCV was higher in men than in women. This study's outcomes saw 16.18% of T2DM power in patients sullied with HCV (Rehman et al. 2017). As indicated by the consequences of this review, there are significant areas of strength among T2DM and HCV contamination. If an HCV patient, the possibility of getting type 2 diabetes. In HIV-positive patients with HCV, expanded Age, weight gain, and genotype 3 of HCV 3 are free indicators of type 2 diabetes. It is essential to recognize and control the number of patients impacted by Type 2 diabetes before diabetic populaces and reject HCV contamination.

3.11 Blood donor screening:

The ordinary identification of clinical benefactors is crucial for limiting the spread of HCV. Blood recognition for TTI, counting HCC, before bonding, is presently a typical practice among clinical consideration suppliers in Pakistan, especially from presenting a National Integral Blood strategy in 2003 in all locales of Pakistan. This study was directed to decide the connection between Hepatitis C and Diabetes and recognize risk factors. The studies covered all the provinces of Pakistan.

3.12 Clinical Serological testing:

The counter HCV immune response was done in an example of 100 diabetic patients who visited the Nishtar Medical College and Fine Hospital Diabetic Clinic. Information from roughly 100 nondiabetic subjects (volunteer givers) of the blood donation centre of that medical clinic was taken. The predominance pace of HCV among diabetic patients was recorded at 19%, and in nondiabetics, it was 3%. The commonness of HCV disease is higher in type 2 diabetic patients contrasted with type 1 diabetic patients (84% determined with 16%). Female diabetic patients have higher seropositivity (74%) than male diabetic patients (26%). The outcomes showed that in the current review, the commonness of HCV disease is multiple times higher in diabetic patients contrasted with nondiabetic subjects (control bunch) (Kanwal et al. 2016).

3.13 Chronic and Acute stages:

There is a significant general medical condition from one side of the planet to the other. That both ongoing and intense stages are asymptomatic. The worldwide pervasiveness is 3%, while the commonness in Pakistan is 4 - 7%. In Pakistan, Hepatitis C infection is a significant reason for persistent liver illness and cirrhosis. Hepatitis C infection, which has a positive-abandoned RNA genome, is the most widely recognized reason for non-A, non-B post-transfusion Hepatitis. The most pervasive HCV infection in our space is genotype 3, which predicts not just brief span treatment and better biochemical and virological reaction. HCV hereditary cosmetics 3 is more

typical among drug clients in Europe and America, yet it might be due to complex infusion techniques in our country.

The WHO appraises that over 3% of the total populace has Hepatitis C (WHO 2014). All around the world, the weight of Hepatitis C sickness shifts geologically, with East and Central Asia having the most significant predominance, trailed by North Africa and the Middle East. By far, most of the populace has never been evaluated for Hepatitis, and many individuals who have been analyzed have gone untreated their whole lives.

3.13 Screening in remote areas of Pakistan:

In distant regions and towns, there is no component for HCV evaluation. Punjab's locale incorporates Lahore, Multan, Faisalabad, Gujranwala, and Rahim Yar Khan. These irresistible illnesses are a significant well-being worry in emerging nations, including Pakistan, among giver populaces. Because of co- the executives, sound clinical judgment is expected to keep away from gambles. In various pieces of Pakistan, HCV contamination is connected to an absence of medical care offices. More than 10 million individuals in Pakistan are tainted with HCV, exacerbated by the lack of information from a distant region. HCV genotype 3a is the most well-known in Pakistan.

3.14 Case studies in different parts of Pakistan:

From 01/06/2019 to 30/11/2019, 6 months of information is gathered from the Medicine ward of Liaquat University of Medical and Health Sciences, Jamshoro (District of Sindh). In this study, the statement of 327 patients was incorporated. The recurrence of T2DM in the concentrate-on example was 37% (124 out of 327 cases). There were 158 (48.3%) male and 169 (51.7%) female patients. There was a critical relationship between the event of T2DM in HCV seropositive patients and their Age. There was no massive relationship between the occurrence of T2DM in HCV seropositive patients and their orientation. The possibility of T2DM in the review's HCV seropositive patients was essentially high in over 40 years old patients ($p=0.0005$) (Ali et al. 2021). In Karachi, concentrates on the mother-to-kid transmission of HCV contamination uncovered that 16.5 % of expecting moms tried positive for HCV. Disease with Hepatitis C is an overall general medical problem. Because of the seriousness of the contamination, populace-based epidemiological examinations have been led in different areas of the planet, including Pakistan, to estimate its predominance and foster anticipation measures. Family contacts, history of dental work, history of medical procedure, and history of blood bonding are significant gamble factors for the expanded predominance of Hepatitis B and C in Pakistan. Hepatitis B and C are standard among preoperative eye sickness patients in Karachi. Routine serological testing before a medical procedure should be made necessary with the goal that asymptomatic patients need not add to the infection's spread.

From April 2010 to May 2011, 377 patients introduced to the waterfall medical procedure at the Department of Ophthalmology Unit I, CHK, were exposed to an expressive report. To enrol members matured 18 and up, comfort examining was utilized. The patients were tried for Hepatitis B and C, and the outcomes were recorded on an organized gathering sheet. In preoperative

waterfall patients, the absolute predominance of both Hepatitis B and Hepatitis C was viewed as 49 out of 377. (12.99 %). Altogether, 8 (2.1 %) tried positive for HBsAg, and 42 (11.1 %) tested positive for Anti-HCV. Just a single patient was found to have both HBsAg and Anti-HCV inspiration. An Akhuwat Health Services (AHS) Diabetes Testing and Screening Camp in Township, Lahore, collected blood samples from 259 diabetic patients. Individuals of all age gatherings and sexes were welcomed. Of 260 patients, 53% (140/260) were females, while 47% (120/260) were guys. The extent of 260 patients with their age bunches is displayed in (Table 1).

Table 1. Different age groups of diabetic patients (Atif et al. 2017).

AGE GROUP	FREQUENCY(N=21)	PERCENTAGE
<20	1	5%
20-30	5	24%
30-40	7	33%
40-50	3	14%
<50	5	24%

The inescapability of HCV in Diabetic Patients was 8% (20/260). Degrees of HCV-positive diabetic patients with their age bundles are shown in (Table 3). When the frequencies matured enough, and the direction of positive occurrences of HCV was checked, there were crucial differences between the order and Age of social occasions.

The inescapability of HCV was generally high in diabetic females (62%) when it stood out in diabetic males (38%). It was in like manner found in the eventual outcomes of this study that the transcendence of Diabetes was high in the 30- 40 years age bundle, i.e., 33%, as shown in (Table 2).

Table 2. Different age groups of HCV-positive diabetic patients (Atif et al. 2017).

AGE GROUP	FREQUENCY(N=259)	PERCENTAGE
<20	17	7%
20-30	35	13%
30-40	64	25%
40-50	64	27%
>50	74	28%

This cross-sectional study was done in Wazirabad Tahsil of Gujranwala District of Pakistan to analyze the %age of patients suffering from Hepatitis C who had the Risk of diabetes mellitus. For this research work, 1296 participants were included in the present study, out of which 273(30%) were suffering from Hepatitis C and were found to be diabetic. In our study, a total of 171 female participants (64%) suffering from HCV, of whom 66 (40%) were diabetic.

And the total number of male HCV patients was 102 (37%), and 15 (15%) were diabetic. These results have shown that HCV was more prevalent in females than males. Results show that patients

with Hepatitis C are at higher Risk of developing Diabetes; therefore, it is supposed that persons with Hepatitis C should regularly visit doctors for routine check-ups of Diabetes and change their lifestyle to reduce the Risk of Developing Diabetes (Zafar et al. 2020).

Table 3: Prevalence of Diabetes mellitus among HCV-positive male and female patients (Zafar et al. 2020).

PATIENT	NUMBER	MALE	FEMALE
HCV POSITIVE	273	102	171
TYPE 2 DIABETIC	81	15	66
NON-DIABETIC	192	87	105
% OF HCV PATIENTS HAVING DIABETES	29.67%	14.70%	38.69%

4. MATERIALS AND METHODS:

The research was conducted in LRH, the research Centre for PCR, Peshawar. 1,295 patients took part in the review, with 212 patients considered positive. During the study, hospitalized and outside patients were observed for DM and HCV. Segment information has been gathered as data on a pre-plane examiner comprised of name, Age, sex, area, school preparation, family background of the infection and other related illnesses, and past medicines.

In our survey, we have rejected pregnant women, patients with a history or evidence of pancreatitis, pancreatic development, hepatic malignant growth cirrhosis, or other existing together famous sicknesses like hepatitis B. All patients have been gone after for sporadic glucose according to the new examination Criteria arranged by ADA and WHO (as hypoglycemic with under 60 mg/dl, normoglycemic with 126 mg/dl, and hyperglycemic with 200 mg/DL of glucose, resp. et al.2000). The DM was affirmed by the banding procedure, where the HCV test was finished by qPCR persistently.

4.1 Sample Assortment & Dispensation:

RNase-free gel tubes with numbered and signed numbers have been used to take patient blood samples. Following centrifugation at 6000g for 5 minutes, the samples were collected.

4.2 Mandatory Material:

Resources essential for the procedure are the following:

- Cradle RAV1 2x 35 mL
- Cradle RAW 2x 30 mL
- Cradle RAV3 (concentrated) 2x 125 mL
- Cradle RE 2x 5 mL, Transporter DNA lyophilized 2x 1mg
- Ribo Virus sections 100
- Assortment tubes (2) 300
- Ethanol 96-100 percent
- Organic bureau
- Miniature axis tubes
- Sterile RNase-free pipette tips with spray hindrance
- Expendable gloves (powder-less)

- Miniature rotator (with rotor for 2mL cylinders)
- Continuous qPCR machine.

4.3 Extraction of DNA:

- 600 μL of lysis support (RAVI) was taken in a cylinder and added 150 μL of blood serum was. The substance is in a vortex for 15 seconds and brooded for 5 minutes at 70°C.
- After brooding, an equivalent volume of ethanol (96 - 100 percent) was added to the example, and the substance was blended involving a vortex for 15 seconds.
- The examples were then moved to new 2 ml outward cylinders and centrifuged briefly at 8000g. The standard (700 μl) was subsequently stacked into a section.
- The examples adsorbed in the section were washed multiple times with 2 ml of Water. The crude cushion (500 μL) was then used to clean the nucleic acids adsorbed in the section. The cylinder centrifuged 8000g briefly.
- A subsequent washing cushion was added, and RAV3 (600 μL), 8000g was centrifuged briefly. A subsequent washing round was made with RAV3 (200 μL). For the expansion of the cushion, the cylinder's rotator at a rapid of 11000g for 5 minutes to guarantee that all contaminations and ethanol have been wiped out.

In the last advance, the segment was first hatched at 70°C briefly with an open breaking point to kill any hint of ethanol. After the hatching, the section contained in the cylinder was set in another RNase-free cylinder, and a warmed 50 μL (70°C) support was stacked at the highest point of the segment.

The segment was hatched for two min & centrifuged at 11000g briefly. A new RNase-free cylinder containing the unadulterated viral nucleic corrosive was placed at -20°C before the back handling. PCR was conducted the following day using the samples as demonstrated by (Sarrazin et al. 2006).

5 DIAGNOSIS

The thorough analysis of the literature has helped to understand the situation from a better perspective regarding HCV in diabetic patients. In rural areas, more men are the victim of the disease for several reasons. These include unhygienic living, poor awareness, and lack of proper medical facilities. Besides these, blood transfusion plays a significant role in spreading HCV, particularly in diabetic patients.

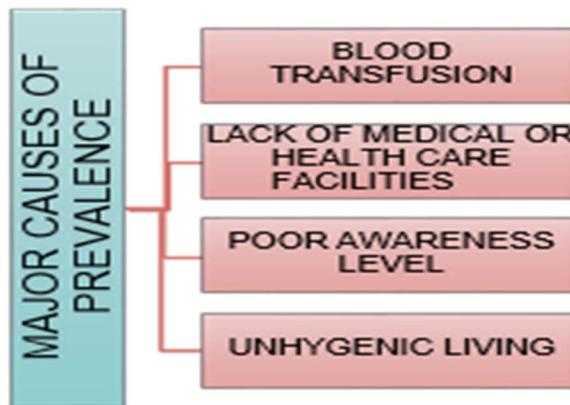


Figure 1: Major causes of prevalence.

Even though Pakistan has a modest Hepatitis B pervasiveness, the Harmful condition is still a severe difficulty, with a transmission rate of 3 to 4 %.

Hepatitis B-tainted blood or liquids are believed to be Pakistan's primary wellspring of illness. Blood bonding is the principal reason for HCV transmission in Pakistan, according to an investigation of blood donation centres in the nation's major metropolitan regions, which unveiled that just around 25% of them tried blood item gifts endlessly for HCV to minimize expenses.

HCV is a primary source of death in thalassemia patients because of post-bonding HCV contamination, which quickly advances to liver disappointment or even HCC. Due to the high gamble of propensities, way of residing, low degrees of schooling, deprivation, and unfortunate cleanliness, vagrants are one of the principal high-risk bunches for gaining HCV contamination in Pakistan. Since HCV contamination is more typical among vagrants than other blood-borne irresistible sicknesses, it is the most significant medical problem among the destitute.

Diabetes is perhaps the most well-known metabolic turmoil. Various examinations have shown that HCV disease plays a part in enacting the patient's fundamental safe reactions. In light of the investigation, it is apparent that the commonness of HCV in diabetic patients is not constrained by Pakistan's specialists and medical care arrangements.

A meta-examination found that Pakistan is encountering an HCV pestilence of enormous extents, with one in each 20 Pakistanis previously contaminated, with this disease assuming a critical part in the country's liver sickness trouble. HCV has high pervasiveness in all hazard populations, with general medical care processes appearing to be the introductory course of defilement.

Diabetes mellitus type 2 is more typical in persistent Hepatitis C patients. Age, orientation, and a positive family background of Diabetes mellitus are all hazard factors that incline persistent Hepatitis C patients toward creating T2D. Supporting this conversation, one more piece of proof from the writing portrays that T2D is a crippling sickness.

The co-disease of HCV and T2D has been displayed to demolish this disorder, so a screening activity to decide the pervasiveness pace of HCV among diabetic patients has become fundamental.

The conversation recommends that the predominance of HCV in diabetic patients is noticeably affecting the group environments of Pakistan. The higher specialists need to assume responsibility for the circumstance. The investigation has featured numerous significant necessary perspectives to be tended to immediately.

6. RESULTS:

In this review, Continuous qPCR was used to test 1311 HCV cases, of which 212 were positive for 16.18% of the population. HCV cases are more visible in male patients (57.75%) than in women (42.93%). Different age groups were found regarding HCV disease between 30 to 40 years old, while only 32 cases were reported positive between 40 to 50 years. When we look at younger people from the Ages of 20-30 years old, 52 patients were reported. However, in all gatherings of Age, the presence of HCV was more significant in men than in ladies.

The information regarding the town is pondered a large number of positive cases in provincial regions contrasted with metropolitan regions. Of the absolute 60 instances in the urban areas, the quantity of positive male subjects for the HCV was 35 (58.34%), and the female subjects were 25 (41.66%). Then again, 152 (71.70%) patients were positive in towns (56.58% of men and 43.42% of ladies).

In the current review, the instructive history shows a significantly less range of circumstances (43.40% of circumstances) were likewise considered. Once more, the range of HCV cases was more significant in men (75%) and women (25%). Interestingly, the patients' quantity without schooling with HCC 120 with 44.17% of enlisted men and 55.83% of ladies (Table 5).

Table 5: Sociodemographic characteristics of HCV and Diabetes.

Patients	Total	Men	Women
HCV positive	212	121	91
Age group 20- 30	52	30	22
Age group 30-40	132	72	60
Age group 40-50	28	19	9
Diabetic	56	25	31
Urban	60	35	25
rural	152	86	66
Educated	92	69	23
Non- educated	120	53	67

The generally popular burden among the tainted people was in the scope of 1295 to 9500750 RNAIUmL⁻¹; less proportion of virus-related burden in men contrasted with women noticed. The pathological load among men reaches from 1333 to 7923983 RNAIUmL⁻¹, while in women, it reaches from 1295 to 9500750 RNAIUmL⁻¹ (Figure 2).

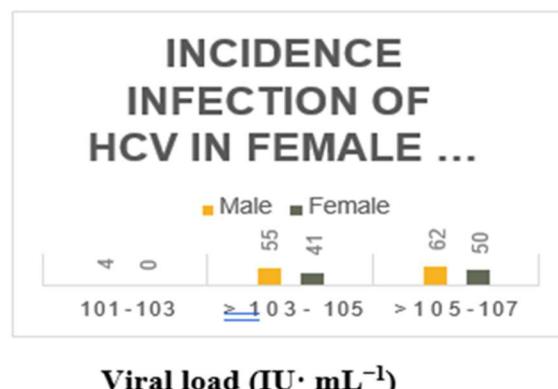


Figure 2: At LRH Peshawar, male and female patients were infected with HCV.

It was tracked down fascinatingly that as far as possible and the furthest reaches of the viral burden were recognized in patients. An unmistakable distinction in the viral load was likewise seen in the different age gatherings. The higher viral burden was kept in male patients (7922371RNAIUmL - 1) and females (9499455RNAIUmL - 1) from 30 to 40 years. Notwithstanding, a widespread low load was observed in the two genders aged 40 to 50 years of Age (Figure 3).

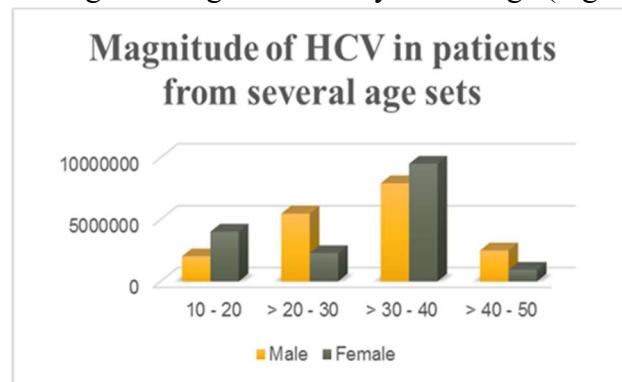


Figure 3: Scale of HCV in patients from several age sets.

The outcomes in Figure 5 uncovered that nearly 33% of the patients suffering from HCV have Diabetes. Twenty-six percent of the patients with HCV were found to have T2DM, according to our records. Not many years ago, persistent HCV and liver cirrhosis were deeply interwoven, but DM is much later.

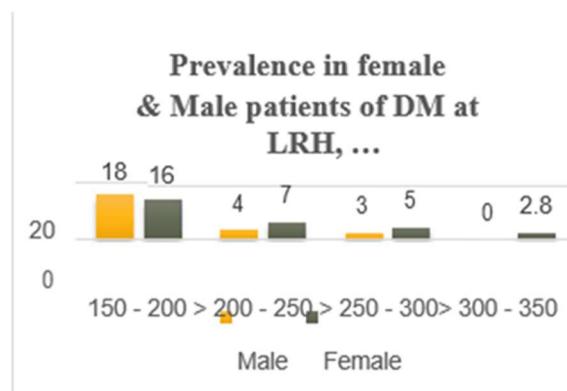


Figure 4: Pervasiveness in men and women patients of DM at Peshawar Hospital.

In Figure 6, the cases reported in 2016 show that the significantly affected peoples are from Gujranwala and the minimum cases reported are from the city of Multan.

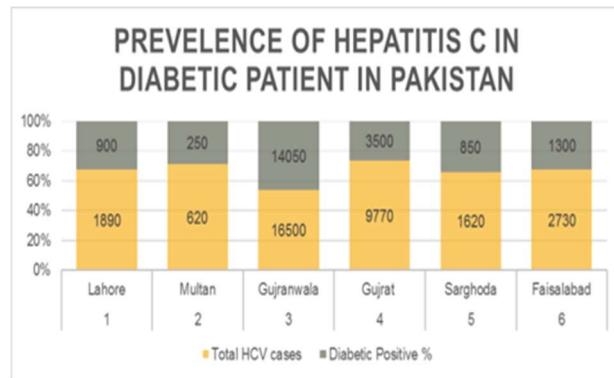


Figure 5: Prevalence of Hepatitis C in Diabetic Patients in Multan city of Pakistan.

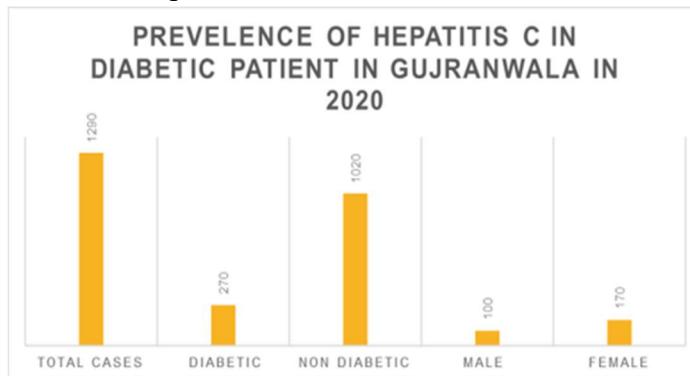


Figure 6: Prevalence of Hepatitis C in Diabetic Patients in Gujranwala in 2020.

The cases from different articles show that the disease ratio reduces too much in 2020 compared to 2016 (Figure 7).

This study was collected from Lahore in 2017 and showed the prevalence of the disease Gender vise in the city of Lahore. This study shows that females are affected more than males (Figure 8).

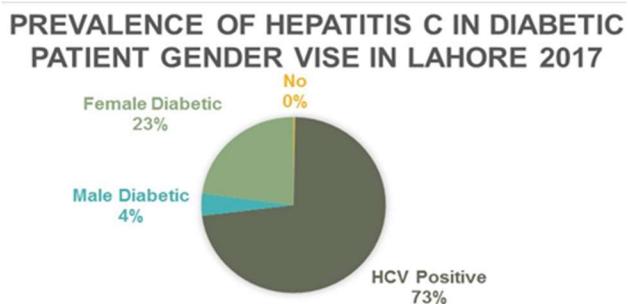


Figure 7: Prevalence of Hepatitis C in Diabetic patient gender vise in Lahore 2017.

A few months' data on hepatitis cases were also collected from the medicine ward of Liaquat university of medical and health sciences, Jamshoro, a Sindh district (Figure 9).

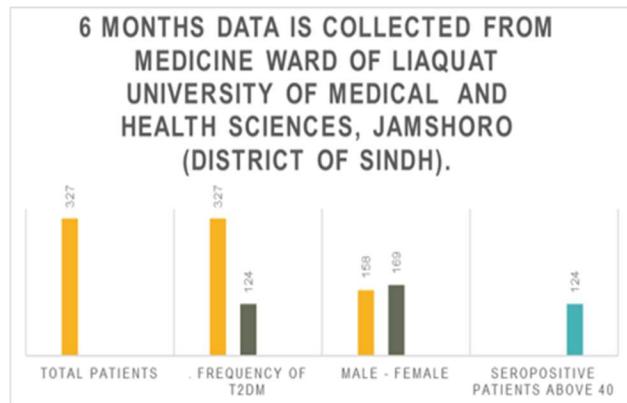


Figure 8: Prevalence of HCV in Jamshoro, Sindh.

7. DISCUSSION:

HCV is the primary driver of persistent liver infection, creating terminal cirrhosis and liver malignant growth, and it stays the primary driver of liver transfers. Ongoing HCV contamination intends to be a fundamental different features infection that not just influences the irritation of the wellspring of the liver climate, yet in addition changes the digestion of glucose and lipids, prompting metabolic sequelae like Insulin obstruction, Diabetes. HCV has been related as a free gamble factor for the extension of Diabetes in inclined people. Likewise, it can advance the direct destruction of pancreatic B cells and trigger immune system responses by sub-atomic mimicry in the pancreas. Its immunological impacts can again help the advancement of Diabetes in patients who have undergone liver transplantation for HCV contamination. This article investigates the fascinating connection between HCV and Diabetes contamination, the two fundamental general well-being moves that lead to standard well-being and monetary charge. The perplexing communication between the HCV and the metabolic methods of the host is exceptionally intriguing. The immediate effect of HCV on pancreatic B cells impacts the development of an aggravation climate. It prompts Diabetes in hereditarily inclined people with common gambling factors significant areas of strength for like history.

Because of the immediate connection between Diabetes and HCV, clinicians foster early location techniques of Diabetes in people contaminated with HCV to limit the gamble of mortality when these two sicknesses exist simultaneously. It is likewise vital to show whether the rate of Diabetes can be productively decreased by viral freedom. New handling explanations are now utilized, however new treatments against explicit sicknesses are likewise evolved to lessen the viral irritation of HCV and the possibilities of advancement of the immune system process, which will thus work on metabolic boundaries and will diminish the Risk of improvement of Diabetes in patients with persistent HCV disease. HCV and DM are the two principal medical issues that cause awful wellbeing and monetary worries around the world. He has seen in the past that the two illnesses have a high relationship, possibly because of the unusual liver circumstances. Yet, the diabetes predominance component in patients with persistent HCV disease stays unsure. The information gathered from various articles analyses the connection between HCV and DM. The vast predominance of diabetic males & ladies tainted with hepatitis C was seen during this review. The information was gathered from patients through a pre-Plainfield poll which incorporated the

name of the patient, HCV, diabetics, Age, sex, area, school preparation, history group of the sickness, different infections, and any therapy on the off chance that it is taken. The consequences of this study found the pervasiveness of the difference in Diabetes in patients tainted with HCV with and without orientation borders examined in this article by gathering information from various articles. Consequently, we end that contamination by HCV can be one reason that could prompt Diabetes.

8. CONCLUSION:

It has been concluded that Chronic HCV and Diabetes are linked both and to assert themselves. HCV is an alarming factor in developing Diabetes. Diabetes increases the chances of growing complications associated with chronic HCV infection due to the two functions related to the liver. The developed pervasiveness of T2DM in patients of Diabetes with the consequence related to the conversion of insulin sensitivity by the viral particle of the HCV itself. According to this study, we observe an improvement in insulin resistance and a decrease in the development of T2DM after the elimination of HCV. The HCV antibody test is a blood test used to determine if someone has already been infected with the hepatitis C virus. It also checks diabetes mellitus (DM) in the blood, another Main problem linked to health amid the established nations & no developed states of a sphere. Concerning the rising DM leanings, an increase of 70% was testified in emerging countries, associated with 47% of the population in developed countries across the sphere. Diabetes was destined for greater Age, but lately, it was also perceived as significant in young people. Thus, the main reasons behind this could be the livelihoods of the region's inhabitants.

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