

## Frequency of the risk factors for HEPATITIS-C related cirrhosis among adults in Karachi- perspective from three tertiary care hospitals

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### **COVERING LETTER**

**TITLE:** Frequency of the risk factors for HEPATITIS-C related cirrhosis among adults in Karachi-perspective from three tertiary care hospitals.

**SUBMISSION TYPE:** Through email

**PRINCIPAL INVESTIGATOR:**

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\***CONTRIBUTION:**Innovator of concept,design framework of whole study, overviewed previous literature on the same topics, explain methodology to co-investigators, design questionnaires,prepared synopsis, undertaking certificate, abstract, introduction, charts, tables

and conclusion, analyze and interpret results through SPSS, laid frame work of whole manuscript and prepare covering letter, result and discussion.

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\* this is joint team work, each investigator worked by heart for the improvement of study

**UNDERTAKING:**

The whole manuscript is reviewed and approved by all investigators and there is not any conflict of interest between us. This whole study or any part of manuscript never sent for any publication.

This study has been ethically approved by the office of the director research (DUHS). IRB certificate is enclosed.

**IMPORTANCE OF ARTICLE:**

Our study focuses on determining the most common risk factors associated with hepatitis C related CIRRHOSIS which can help physician and patients to know the impact of different factors on their prognosis. Reducing the prevalence of these risk factors can also help decrease the development of hepatitis C related CIRRHOSIS in our society. The International Journal of Research is well-known for its high standard and authenticity, which attracts people involved in



all lines of medical profession to submit their research articles to it. Furthermore, publication in a recognized journal is both a source of honor, dignity and produces positive results in professional future. **WORD COUNT:**

ABSTRACT: 192 words including Key words.

MAIN ARTICLE: 3175 words.

## UNDERTAKING

I, Abubakar tauseef, and my below mentioned colleagues are submitting our original research titled **“Frequency of the risk factors for HEPATITIS-C related cirrhosis among adults in Karachi- perspective from three tertiary care hospitals”** to the International journal of Research for publication.

We agree that upon acceptance by International journal of Research, all copyright ownership for the article is transferred to the journal. We, the co-authors of this article, have contributed significantly to and share in the responsibility for above. We assure that the material submitted to Journal is new, original and has not been submitted to another publication for concurrent consideration.

The editors of Journal of the International journal of Research have the right to suggest changes at any stage.

We also attest that any human and /or animal studies undertaken as part of the research from which this manuscript was derived are in compliance with regulation of our institution and with generally accepted guidelines governing such work.

We further attest that we have herein disclosed any and all financial or other relationships which could be construed as a conflict of interest and that all sources of financial support for this study have been disclosed and are indicated in the acknowledgement.

Yours' sincerely,

ABUBAKAR TAUSEEF and the CO AUTHORS.

## ABSTRACT:

**Objective: Frequency of the risk factors for HEPATITIS-C related cirrhosis among adults in Karachi- perspective from three tertiary care hospitals.**

*Participants and Method: It was a descriptive study, conducted at Medical Units of CHK, JPMC and LNH, Karachi. In this study all data was collected by the co-investigators during a period of 5th September 2014 to 15th December 2014, 377 individuals were selected on convenient basis and in the end data was analyzed by using SPSS 16.0 version.*

*Results: Out of 377 individuals, 217(57.6%) were males and 160(42.4%) were females. Among males previous intra-venous drug history and family history of hepatitis C has outnumbered all other risk factors, contrary to this, blood transfusions and piercing/tattooing has outnumbered all other risk factors among females related to HEPATITIS-C related cirrhosis.*

*Conclusion: A variety of risk factors exist in patients with hepatitis C related cirrhosis. Special attention should be paid to intra venous drug history and blood transfusion history, two of most common risk factors of Hepatitis C related Cirrhosis in both*



*genders. One should understand this fact and try to reduce prevalence of these factors.*

Key words: Frequency; risk factors; hepatitis C; Cirrhosis; Karachi; hospitals

## **Frequency of the risk factors for HEPATITIS-C related cirrhosis among adults in Karachi- perspective from three tertiary care hospitals.**

### **Introduction:-**

Cirrhosis is the end stage of any condition in which the liver progressively becomes scarred. It is diagnosed based on physical findings as well as a microscopic examination of liver tissue from a biopsy (tissue sample) or evidence from other diagnostic tests such as ultrasound. Under the microscope, cirrhosis appears as widespread bands of fibrous (made up of fibers) tissue that divide the liver into nodules (small knots or collections of tissue). Eventually, cirrhosis interferes with the function of the liver and can lead to liver Failure(1). It is an indolent disease which may remain asymptomatic or characterized by fatal outcomes like Ascites, hepatic encephalopathy, spontaneous bacterial infection and variceal bleeding(2,3). Hepatitis C virus, one of the common infection in the world infects around 170 million people and around 2.4 to 6.5 % people in Pakistan and it is the major culprit responsible for liver transplantation(3), it also increases complications in individual co infected with HIV-1 as person with HIV-1 has a reduced cell mediated immunity which can exaggerate the damage caused by hepatitis C virus(4). Hepatitis C is a common cause of cirrhosis and Hepatocellular Carcinoma(5) as it ends up in chronic liver disease in 50% to 80% of cases(6).

There are a large number of risk factors associated with hepatitis C associated cirrhosis like blood transfusion(Blood

transfusion is the commonest mode of virus transmission) as hepatitis C virus is usually active in blood and other body secretions so it can easily transmitted from any infected person to others via transfusion of his blood(6,7).

Intravenous drug abuser are also on a high risk of transmitting the disease as they frequently puncture their veins in order to get drug,so if the needle is infected with hepatitis C, person easily get exposed to it(8).

Accidental needle stick injuries may also leads to transmission of hepatitis C, ultimately, not always progresses to cirrhotic liver disease(9).HIV positive patients usually are immune compromised as there cell mediated immunity is lost progressively because HIV infects CD-4 Helper T Cell. Deficiency in immunity exposed patient to get multiple infections,Hepatitis C is one of the common infection associated with HIV(10,11).

Tattooing may also causes hepatitis C as instruments used for tattooing are usually infected,Clinically apparent hepatitis C virus (HCV) infection developed in a prison inmate after two tattooing episodes(12,13).

Organ Transplantation once done, patient is put on lifelong immunosuppressing drugs like cyclosporine,thus increasing the chances for opportunistic infections by various pathogens,like hepatitis C virus(14).

Sharing of personal hygiene items was a confounding factor in the transmission of hepatitis C as in one study it was found that Shared personal hygiene items showed a much higher correlation with the possible route of transmission and were better supported by the sequence homology data than the other associated risk factors. Three (33.3%) couples shared toothbrushes, seven (77.8%) shared razor blades, eight (88.8%)

shared nail clippers, and six (66.7%) shared manicure cutters(15,16).it is also true fact that hepatitis C is present in saliva of patient , so it can get transmitted with close contact(17).

Risk for hepatitis C is increased if any of the family member is positive for HCV-RNA, and this risk keep on increasing as the number of infected family members are increasing (18).

The Objective of our study is to evaluate the frequency of risk factors among males and females and to find out the most common risk factor associated with Hepatitis C related Cirrhosis among males and females in patients reported in three tertiary care hospitals of Karachi.

## **METHOD AND METHODOLOGY:-**

The study was conducted at medical units of Civil hospital, Jinnah Postgraduate Medical Centre(JPMC) and Liaquat National hospitals of Karachi, few of the leading and top rated institutes providing health facilities to patients visiting the premises. It's a questionnaire based descriptive study conducted during a period of 5<sup>th</sup> September 2014 to 15<sup>th</sup>December 2014.

Initially this topic was decided and Performa was designed with the help of our supervisor and cooperation of all the Co-Investigators .After all ifs and buts we finalized the per forma which was divided into two sections ,first section includes bio data containing name(as optional), age, gender and ethnicity of the Subjects of the study. Second section comprises of risk factors which includes health care worker being exposed to infectious blood, Previous I/V drug history, HIV positive patient, piercing/tattooing by inserting equipment, blood transfusion (at least more than one year back), organ transplantation in past, close contact with

patient and family history positive for hepatitis C . Study was ethically approved by institute of research board (I.R.B), copy of approval is given in the end of the manuscript. A sample size of 377 was calculated by using a raosoftware formula (link

given){[www.raosoft.com/samplesize.html](http://www.raosoft.com/samplesize.html)} by using 5% as margin of error,95% as confidence level,20000 as a population size(as exact number of patients was highly variable in above mentioned hospitals) and response distribution was taken as 50% (as per given in the link).Out of this sample size 150 cases were taken from civil hospital,150 from JPMC AND 77 cases were from Liaquat National Hospital. This division of sample is done randomly on the basis of the burden of patients among these three hospitals. Subjects for this study were selected on convenient basis but all subjects that were selected were admitted to the above mentioned hospitals.

Only those who were suffering from Cirrhotic Liver Disease and were admitted to Medical units of civil hospital, Jinnah Postgraduate Medical Centre (JPMC) and Liaquat National hospitals of Karachi were included while all those who negated consent regarding participation in this study and who were not suffering from Cirrhotic liver disease or were not admitted to above mentioned hospitals were excluded from our study. After greetings and taking verbal consent from the patients, all questions in the Performa were asked from the patients during one on one conversation by all the subjects of the study. After complete filling of the Performa data is entered and statistically analyzing by using SPSS 20.0 version and results were obtained through it as per given below in results.

**RESULTS:-**A total of three hundred and seventy-seven individuals were selected for this study out of which two hundred and



seventeen (57.6%) were males and one hundred and sixty(42.4%) were females.

Among males observed in our study, previous intra venous drug history has outnumbered all other risk factors with a frequency of 137(58%),being seconded by family history of hepatitis Cwith a frequency of 55(25%).Remaining of the 160 individuals selected in our study were females among whom results found were not the same as that of males showing that blood transfusion (at least more than one year back)has outnumbered all other co morbidities with a frequency of 61(38%),being seconded by piercing/tattooing by using equipment with a frequency of 32(21%).(TABLE).

The variability of risk factors frequency among males and females most probably were due to the fact that in our locality intravenous drug abuse is much lesser among females in contrast to that of males.

## **Discussion:-**

### **Our study has shown a couple of interesting results but few of these needs a light of discussion as given below:**

A study conducted in Atlanta shows that only 1% of health care workers has developed hepatitis C related Chronic diseases which is a very small percentage in contrast to 2.5 % of health care workers developing it in our locality(19).another study shows that Occupationally Acquired Infections are greatly related among Health Care Workers(20).

A study conducted by Jason Grebely and Gregory J. Dore shows that 2-5% of previous intravenous drug users developing hepatitis C while contrary to this our study shows that 33% of males and 10% of females using intravenous drugs develops hepatitis C related Cirrhosis which on one hand is a very big number and on the other hand is the

leading risk factor causing hepatitis C related chronic diseases in our locality(21).

Another study conducted in Spain shows only 0.025% of hepatitis C associated cirrhosis in HIV Positive cases in contrast to 8% in males and 4% of females in our selected subjects which although not shows a big difference but it is still a very huge percentage(22).

A Taiwanese study conducted by KO et al shows that 5.9% of individuals who had done tattooing or piercing in last couple of years had developed Hepatitis C associated cirrhosis in contrast to that of our study which although shows 4% in case of male but contrary to it, percentage of tattooing or piercing among females was found to be 21% which is alarmingly high in contrast to males of same locality as well as its very high from that of Taiwanese study (23,24).

Transfusion of blood products has been a leading cause of transmission of HCV; however, due to improved screening, transmission through transfusions has decreased in most developed countries. In Japan, incidence of post-transfusion non-A non-B hepatitis among those with less than 10 transfusions dropped from 4.9% (1988-Oct '89) to 1.9% (Nov'89-90) after screening with first-generation anti-HCV test was introduced(25).In the US, incidence of post-transfusion hepatitis C dropped from 3.84% to 0.57% per patient (0.03% per unit blood) after HCV screening was introduced in 1990. (26).In England, the frequency HCV infected donations dropped from 1 in 520,000 (1993-98) to 1 in 30 million (1999-2001) when donations were tested for HCV RNA(27) in contrast to our study which shows 21% of risk among males and 38% among females.

Studies shows that in those patients who undergo renal transplantation, in developed countries, the reported prevalence of HCV

infection is usually higher than that seen in Hemodialysis patients, ranging from 11% to 49%(28-32) which was found to be very high in contrast to our study which shows only 0.4% among males and 3% among females.

### **Conclusion:-**

A variety of modifiable risk factors exist in patients with hepatitis C related Cirrhosis. Appreciation of role played by these risk factors in the pathogenesis of this disease is crucial aspect of medical sciences. Special attention should be paid to previous intra-venous drug history, blood transfusion and piercing or tattooing, three of most common risk factors of hepatitis C related Cirrhosis in both the genders. Physician and patient both should understand this fact and try to reduce prevalence of these factors. Males were found to have previous intra-venous drug history as most common risk factor, which can be prevented by spreading the word among general population, not to use previously use syringes for injection themselves as simply by explaining this thing to them, we can cut down the number of patients of hepatitis C among general population. Females were found to have blood transfusion as their most common risk factor which can easily be prevented solely by the physicians, if they send the blood for screening of blood borne infections and only transfuse that blood which is totally free of infection, as by doing this number of patients can easily be reduced.

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**TABLE:-**

| Risk Factors   |         | Gender of patient |              | p-value |
|--|---------|-------------------|--------------|---------|
|  |         | Male N (%)        | Female N (%) |         |
| Health care worker being exposed to infectious blood | present | 8(4%)             | 2(1%)        | 0.146   |
|  | absent  | 209(96%)          | 158(99%)     |         |
| Previous i/v drug history                            | present | 72(33%)*          | 16(10%)      | 0.000   |
|  | absent  | 145(67%)          | 144(90%)     |         |
| HIV positive patient                                 | present | 17(8%)            | 6(4%)        | 0.102   |
|  | absent  | 200(92%)          | 154(96%)     |         |
| Piercing/tattooing by inserting equipment            | present | 8(4%)             | 33(21%) **   | 0.000   |
|  | absent  | 209(96%)          | 127(79%)     |         |
| Blood transfusion (atleast more than one year back)  | present | 46(21%)           | 61(38%)*     | 0.000   |
|  | absent  | 171(79%)          | 99(62%)      |         |
| Organ transplantation in past                        | present | 1(0.4%)           | 5(3%)        | 0.041   |
|  | absent  | 216(99.6%)        | 155(97%)     |         |
| Close contact with patient                           | present | 12(6%)            | 3(2%)        | 0.073   |
|  | absent  | 205(94%)          | 157(98%)     |         |
| Family history of hepatitis C                        | present | 55(25%) **        | 30(19%)      | 0.130   |
|  | absent  | 162(75%)          | 130(81%)     |         |

\*most common risk factor in both genders

\*\*Second most frequent risk factor in both genders



## Institutional Review Board (IRB) Dow University of Health Sciences, Karachi

Ref. No: IRB/DUHS/2014/201

Date: 9<sup>th</sup> September, 2014

Mr. Wajahat Fareed  
4<sup>th</sup>Year Medical Student  
Dow University of Health Sciences  
Karachi

**Subject:** Institutional review board's approval for a research proposal.

**Title of Study:** Evaluation of the risk factors for Hepatitis - C related cirrhosis in young adults in Karachi, Pakistan.

**Principal Investigator:** Mr. Wajahat Fareed, 4<sup>th</sup>Year Medical Student, Dow University of Health Sciences, Karachi

Dear Mr. Wajahat Fareed,

Thank you for submitting the above mentioned project for the IRB approval. Since this study does not involve any intervention and based only on questionnaire. Therefore, the authority bestowed upon me by the IRB committee for such project, I give the approval for the above mentioned project for the period of one year. The supervisor's names are mentioned below.

Any change in the protocol or extension in the period of study should be notified to the committee for prior approval.

Thank you and good luck for the study.

**Supervisor:**  
Dr. Tanveer Alam

Yours sincerely,

*Nash*  
Prof. Nazli Hossain  
Department of Gyn & Obs  
Member, Institutional Review Board  
Civil Hospital Karachi &  
Dow University of Health Sciences  
Karachi