



CODEN [USA]: IAJPBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF  
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1435926>Available online at: <http://www.iajps.com>

Research Article

**TREATMENT OUTCOME OF HEPATITIS 'C' VIRUS  
INFECTION AFTER NEEDLE STICK INJURY AND ITS  
FREQUENCY****<sup>1</sup>Dr. Mohammad Mohsin Javaid, <sup>1</sup>Dr. Naila Iqra, <sup>1</sup>Dr. Rahat Mukhtar**  
<sup>1</sup>Rawalpindi Medical University and Allied Teaching Hospital, Rawalpindi Pakistan**Abstract:*****Objective:** To determine the frequency of acute HCV infection after needle stick injury and the outcome of treatment.****Study Design:** A Retrospective Study.****Place and Duration:** In the medicine Department, Holy Family and Benazir Bhutto Hospital, Rawalpindi for one year period from December 2016 to December 2017.****Methodology:** Patients with HCV positive needle injury were selected and reported at 72 hours of the event. In addition to patients having HBV, HDV, HIV, hematological disorders and depression, infections were excluded. Anti-HCV test was performed in the presentation and positive tests were excluded. HCV RNA was performed after six weeks or two weeks after anti-HCV. Positive tests were kept under observation for 16 weeks for spontaneous resolution. At the end of this period, RNA and HCV genotype was performed and Peg-interferon treatment was started. Fast, early and permanent virological responses were confirmed.****Results:** 208 injuries with needle stick patients were selected by a positive HCV 10 (4.8%). Spontaneous improvement over a 16-week observation period for them (10%) developed acute HCV infection. Seven (77.8%) provided a rapid virological response and eight (88.9%) responded to a continuous virological response.****Conclusion:** Acute HCV is a rare disease; If the patient is started early after 8-16 weeks of strict follow-up, he gives a positive response to the treatment.****Keywords:** Acute hepatitis C, needle stick injury.***Corresponding author:****Dr. Mohammad Mohsin Javaid,**Rawalpindi Medical University and Allied Teaching Hospital,  
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Please cite this article in press Mohammad Mohsin Javaid *et al.*, **Treatment Outcome of Hepatitis 'C' Virus Infection after Needle Stick Injury and Its Frequency.**, *Indo Am. J. P. Sci*, 2018; 05(09).

## INTRODUCTION:

The risk of blood infection through a needle stick injury (NSI) in patients with an injury (NSI) is nine times higher than that of HCV for HBV and about 15 times higher for HCV than in the general population, because patients admit the frequency of blood-borne infections. In different studies, 22-31% of TSs reported one or more NSIs in the previous 12 months. Lawsuits, accidental NSI, medical needles and sharp objects and i.v. drug users. HCV infection is usually subclinical and is not detected for different time periods, and it is accidental. It is determined that HCV RNA is defined as a new beginning for conversion of an HCV RNA negative positive state viremia to HCV. Acute HCV is usually a silent infection and difficult to detect, but it can be readily determined under the conditions of NSI, if it is properly monitored. If not treated, up to 80% of them develop chronic hepatitis. Approximately 20% of patients with chronic hepatitis C are expected to develop cirrhosis; 6% of them will progress to end-stage liver disease and about 4% will develop hepatocellular carcinoma. Treatment of acute HCV has been reported to prevent progression of chronic hepatitis. Therefore, adequate investigation and follow-up of NSI cases is important for the prevention of these complications. Since NSI patients in our region do not have follow-up reports, this study is an interventional cohort of HCV-infected NSI in our region. This is the first report of the frequency of acute HCV after NSI and is the result of the treatment of these patients in Pakistan.

## MATERIALS AND METHODS:

This Retrospective Study was conducted in the medicine Department, Holy Family and Benazir Bhutto Hospital, Rawalpindi for one year period from December 2016 to December 2017. All patients who reported the NSI of the patient were positive for HCV within 72 hours were initially selected for screening. Informed consent was taken from the subjects. Patients infected with other viruses such as HBV, HDV or HIV was not included. Patients with severe depression, thrombocytopenia, leukopenia, de-

compensated liver and kidney disease were excluded from the study. Anti-HCV and ALT were immediately presented by the EIA method to document the state of the baseline. If negative, anti-HCV was recommended to patients after a six-week event. Patients with positive results were selected for follow-up up to 16 weeks. During this period, ALT was performed every two weeks, after which the qualitative HCV RNA PCR was repeated. The positive patients were selected for treatment, while the negative patients were kept under observation for the next 24 weeks, and then the qualitative HCV RNA was retested for PCR, and those tested were selected for treatment. All those selected for treatment were subjected to HCV genotyping and quantitative PCR. The therapy was initiated with pegylated interferon alpha 2a 180 µg / week with ribavirin 1000-1200 mg according to weight. Rapid virological response test (RVR) was performed with qualitative PCR in four weeks of treatment. Those who received RVR received treatment for 16 weeks with the ongoing virological response test (SVR) of the 24-week treatment period. Patients who did not achieve RVR received 24-week treatment and underwent early virologic response testing (EVR) with quantitative PCR every 12 weeks to reduce two logarithms in viral load. Those who could not reach the EVR were informed that the possibility of virological clearance was low, but the genotype for genotype 3 and 48 weeks was continued for a total of 24 weeks.

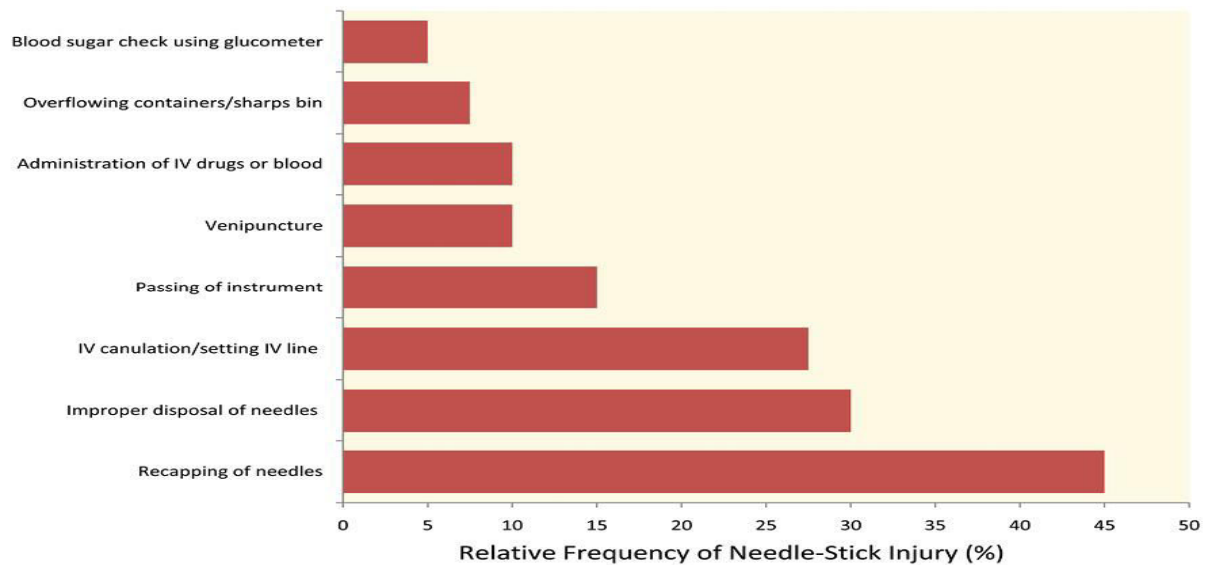
## RESULTS:

Two hundred and fifteen cases presenting NSI during the study period of these five were anti-HCV positive and HBsAg positive in both presentation and excluded. The remaining 208 subjects were recorded for follow-up and mean ALT at that time was  $18.3 \pm 2.6$  IU / L. The event occurred at the time of intravenous cannula 51 (24.5%) and eight (3.8%) discarded syringes such as syringes accidentally touching 149 (71.6%) of the syringe. Of these, 164 (78.8%) were female and 44 (21.1%) were male. The distribution of the profession is given in Table-I.

Table-I: Frequency of NSI according to the job description

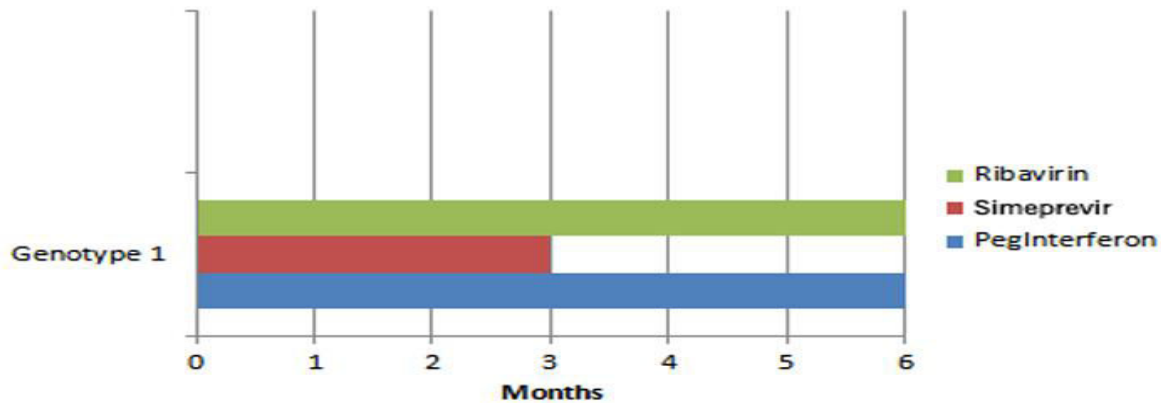
Occupation	No.	%
Consultant	6	02.9%
Trainee	51	24.5%
House Officer	93	44.7%
Nurse	34	16.3%
Lab Technician	23	11.1%

Six weeks after the incident, anti-HCV showed seroconversion to positive at 10 (4.8%) subjects selected for follow-up for 16 weeks with ALT every week. Spontaneous improvement was observed in one (10%) patient at the end of this period, while the remaining nine patients (90%) were HCV RNA positive. The mean ALT Figure-1 graph is given every two weeks for the previous 16 weeks.



Nine patients had three genotypes and had a median load of  $2.9 \pm 1.2 \times 10^5$  IU / ml. After four weeks of treatment, seven (77.8%) patients provided fast virologic response (RVR) and received 16 weeks of treatment. The patient did not receive RVR (22.2%). The early virological response was tested at 12 weeks, both  $> 2$  log decreased viral load and treatment was continued for a total of 24 weeks. Both were negative for HCV RNA after 24 weeks, so the final response to treatment was obtained (ETR). In all patients, a 24-week treatment for permanent virological response (SVR) tests showed that only one patient developed relapse and this patient belonged to the patient group who could not reach RVR. In our series, the rate of SVR was eight (88.9%) in acute HCV after NSI.

## Treatment for Hepatitis C First Treatment Exposure



### DISCUSSION:

Despite the known preventable occupational hazard and their severity, the NSI can transmit HIV-infected blood, such as hepatitis B, C, and D', despite the severity of the disease. In a recent survey, the incidence of NSI in health care workers was reported to be 31.4%. The biggest risk for NSI is lack of personnel, high activity in the room and insufficient control. Care must be taken in the selection of staff and a mix of young and senior staff. Due to mild or asymptomatic behavior, acute HCV is rarely recognized beyond surveillance after exposure. There is still no consensus on large-scale studies and timely treatment, so the number of patients diagnosed with acute HCV is very low. The frequency of acute HCV after NSI was found to be 4.8%. Spontaneous resolution of acute HCV was reported in 20-40% of patients in the study, with only one (10%), spontaneous recovery of observation for 16 weeks. The appropriate timing for interferon-based therapy in acute HCV is controversial. The reason for this is that there are very few studies with acute HCV and it is difficult to determine the exact time of infection. In most studies, the first positive PCR or seroconversion was started 1 to 24 months after the onset of symptoms. Early onset of treatment between 8-12 weeks of infection was advocated in two randomized trials. After 16 weeks of observation, we started treatment. The duration of treatment in acute HCV is also uncertain. Patients with RVR were treated according to the standard protocol of 16 weeks and

for 24 weeks in patients with EVR. There are reports that 12 weeks of treatment may be sufficient for genome 1 in acute HCV. SVR rates need to be determined with 12 weeks of treatment. Patients with low viral load and reaching RVR and genotype 1 are more similar to SVR. In combination with other viruses, infections reduce the likelihood of reaching SVR.

### CONCLUSION:

This study is limited to a small number of patients with acute HCV development, but it is a difficult task to obtain a large study with a rate of 4.8% infection, and this has been a problem to conduct research in a low-prevalence disease. However, this study presents important perspectives on the problem and will certainly serve as a stimulus to do research in this area. We conclude that the diagnosis of acute HCV is a rare disease; If the patient is started early after 8-16 weeks of strict follow-up, he gives a positive response to the treatment.

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