

# STATUS OF HEPATITIS C VIRUS (HCV) INFECTION; CHILDREN ADMITTED IN PAEDIATRIC WARD OF BAHAWAL VICTORIA HOSPITAL BAHAWALPUR

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**ABSTRACT... Objective:** To know the status of hepatitis C virus (HCV) infection in children admitted in Pediatric ward of Bahawal Victoria Hospital Bahawalpur. **Study design:** Cross-sectional descriptive study. **Place and duration of study:** Pediatric unit-1 Bahawal Victoria Hospital Bahawalpur over a period of 2 months and 15 days. **Material and methods:** This study was conducted over 500 children admitted in children ward-1 of Bahawal Victoria Hospital Bahawalpur. Children of 1-15 years of age were included in the study. The blood samples of these children were taken at the time of admission and serum was tested for HCV with ICT method and later on confirmed by ELISA. Children having HCV infection were tested for SGPT level. Different risk factors for transmission of HCV infection were also studied. **Results:** Out of 500 children 43 were HCV positive by ICT method. Out of these 43 ICT positive children 38 were confirmed by ELISA. In this way 7.6% children were found positive for HCV. In 23 cases (60.5%) SGPT was raised (>40). Statistically significant risk factors for transmission of HCV infection found in this study were past history of blood transfusion and history of injections in past. **Conclusions:** HCV infection is quite common in children. Safe blood transfusions and use of disposable and sterilized syringes is important for prevention of this infection.

**Key words:** Hepatitis C virus, children, risk factors.

## INTRODUCTION

Hepatitis is an inflammation of liver. Most common causes for hepatitis are viruses especially A, B, C, D<sup>1</sup>. These viruses interfere with the function of liver. Patient can present with acute hepatitis (short lived) or Chronic hepatitis. Hepatitis C virus now a days, is common cause of hepatic inflammation. Hepatitis C virus usually spread through the blood transfusion,<sup>2</sup> repeated use of same syringes for injections, operative procedures, while vertical transmission is less common<sup>3,4</sup>.

Most of the infected persons do not feel sick in spite of infection with hepatitis C virus. Patient may present with mild fatigue, nausea, vomiting, lack of appetite, low grade fever, generalized itching, jaundice, abdominal pain, tenderness in the area of liver or ascites. Some times no symptom appear but liver is scarred permanently. Acute HCV infection is rarely recognized in children except when there is a known exposure<sup>5</sup>. Most chronically infected children are asymptomatic<sup>6</sup> and have normal or only mildly abnormal alanine amino transferase levels. As far as diagnosis is concerned, we

can detect hepatitis C virus with strip method, which can later be confirmed by ELISA technique or by PCR method to determine virus level (viral load). In order to identify and monitor liver damage, ultrasound, liver function tests (Serum bilirubin, SGPT, alkaline phosphates), serum albumin level and prothrombin time may be helpful. Liver biopsy can show how much damage has been done to the liver. The hepatitis C virus (HCV) induces chronic infection in many of infected persons. Approximately half of these do not respond to therapy. There is a very small chance of clearing the virus spontaneously in chronic HCV carriers. However; the majority of patients with chronic hepatitis C will not clear it without treatment.

Treatment strategies have evolved from mono therapy with interferon alfa (IFN alpha), to combination therapy with Ribavirin. Pegylated IFN alpha is superior to conventional IFN alpha, and forms the basis of current recommendations<sup>7,8</sup>. Nowadays treatment is a combination of Pegylated interferon-alpha-2a or Pegylated interferon-alpha-2b and the antiviral drug

ribavirin for a period of 24 or 48 weeks, depending on hepatitis C virus genotype. Treatment is generally recommended for patients with proven hepatitis C virus infection and persistently abnormal liver function tests. Sustained cure rates (sustained viral response) of 75% or better are seen in people with HCV genotypes 2 and 3 with 24 weeks of treatment. Sustained responses are rarer with other genotypes.

Current guidelines strongly recommend that hepatitis C patients be vaccinated for hepatitis A and B if they have not yet been exposed to these viruses, as infection with a second virus could worsen their liver disease.

Strategies such as the provision of new needles and syringes, and education about safer drug injection procedures, greatly decrease the risk of hepatitis C spreading between injecting drug users.

No vaccine protects against contracting hepatitis C, or helps to treat it. Vaccines are under development and some have shown encouraging results.

Approximately half of hepatitis C-infected persons do not know their status. Screening is the first step in identifying persons infected with hepatitis C. Although some studies have been carried out to know the status of hepatitis C in adults in Pakistan but data regarding this in children is scarce. We have planned this study to know the status of hepatitis C virus (HCV) infection in children admitted in pediatric ward of Bahawal Victoria Hospital Bahawalpur.

## OBJECTIVE

To know the status of hepatitis C virus (HCV) infection in children admitted in Pediatric ward of Bahawal Victoria Hospital Bahawalpur

## PATIENTS AND METHODS

This cross sectional descriptive study was conducted in the month of Dec. 2009, Jan and Feb 2010 with total duration of 2 months & 15 days at Pediatrics Unit-1, Bahawal Victoria Hospital, Bahawalpur, which is a tertiary care center attached to Quaid-e-Azam Medical College, Bahawalpur. This institute is situated almost in the center of the city. Bahawalpur is one of the oldest city of the southern Punjab; Pakistan. The patients admitted

in the ward for various problems in the age range of 1 year to 15 years were included in the study. The babies of age less than 1 year were not included in the study due to possible presence of antibodies against hepatitis C from mother. A Performa was filled for each patient. This contained information regarding age & sex of the patient, previous history of jaundice, different risk factors for transmission (history of recurrent injections, history of blood transfusion, history of surgery in past, history of cutting hair with or without disposable blades) and information about hepatitis C test including liver function tests. The blood was collected at the time of admission of children in the ward and blood samples were sent to laboratory for hepatitis C status by strip method. The positive cases were confirmed by ELISA method. Moreover SGPT level was also measured in hepatitis C positive cases. All this information was entered in computer and SPSS version 10.0 was used to analyze the data. P value was noted for different risk factors and history of jaundice in past. Mean and standard deviation were calculated for continuous variables like age of the patients.

## RESULTS

Five hundred children were included in the study. Out of these 267 were male and 233 were female with the male to female ratio 1.14:1.0. The ages of 233 patients were in the range of 1-5 years (figure 1). Mean age was 4.3 years with a standard deviation of + 1.63. Age of youngest child was 13 months, while that of oldest patient was of 15 years.

Forty three children were positive for hepatitis C infection by ICT method. When these 43 children were tested by ELISA method, 38 children proved to be hepatitis C infected. SGPT level of these hepatitis C infected children was tested. In 61% children it was above than the normal range.

As far as different risk factors were evaluated, P value was significant (0.00) for history of repeated injections in past. Out of 38 infected cases, 29 patients have history of injections in the past.

Similarly P value was significant (0.008) for past history

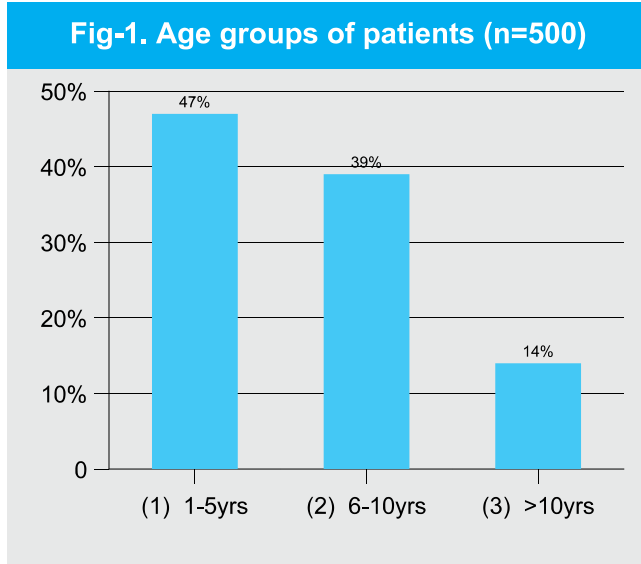
of blood transfusion. Out of 38 infected cases 9 children had past history of blood transfusion, while out of 38 infected children only 2 had past history of surgery (P value 0.367). P value was not significant (0.974) for the history of use of disposable blades for hair cutting. Another important finding was that none of the infected cases had previous history of jaundice with significant P value of 0.024 (table I).

Table-I. Risk factors for hepatitis c infection in studied (Population n=500)			
Risk factors	HCV		P-value
	+VE	-VE	
History of repeated injections			
Yes	29	147	0.000
No	09	315	
History of blood transfusion			
Yes	09	45	0.008
No	29	417	
History of surgery in past			
Yes	02	15	0.367
No	36	447	
History of cutting hairs with disposable blades			
Yes	24	293	0.974
No	14	169	
History of jaundice in past			
Yes	-	38	0.024
No	50	412	

**DISCUSSION**

Hepatitis virus is responsible for almost all cases which were previously known as non-A non-B hepatitis. Although incidence of hepatitis B is decreasing due to effective vaccination but incidence of hepatitis C is increasing day by day, as still there is no effective vaccine to prevent this infection<sup>10</sup>.

Our study was conducted in pediatric department of



Bahawal Victoria Hospital, Bahawalpur to know the hepatitis c virus infection in children. The results were alarming as 7.6% children were positive for HCV. Finding of our study matches to the study of Idrees M et al<sup>1</sup>, who also found that hepatitis C virus infection is common in children in Pakistan. More over they also found the same risk factors for HCV infection i.e. Blood transfusion, reuse of syringes for injections.

Safe blood transfusion is very much important. Sometimes blood is provided by different persons in private setup without being properly screened for HCV. Injection practice is very much common in our area. Quacks are in habit of injecting medicine to every child coming to their clinic. But quality of syringes is poor which either are not properly sterilized or in some cases there is re-packing of used syringes. In some cases quacks may even use single syringe for injections in different children. This practice is common in relatively backward areas of country like ours.

While in developed areas like in Karachi, in a study conducted by Jafri et al<sup>6</sup>, the incidence of HCV was 1.6% plus additional 0.1% who were positive for both HbsAg and HCV. Here the relation with history of injections was not significant. Similarly in Mexico,<sup>9</sup> a developed country, overall incidence was very low (below 1%) as seen in two different studies. Moreover risk factors associated were surgery and Blood transfusion, but not history of recurrent injections. Similarly in another study, in

advance areas of Pakistan the prevalence was 1.72% in pediatric population<sup>3</sup>. But risk factors were same as were in our study i.e. blood transfusion and repeated injections especially reuse of syringes. Blood should be transfused only when indication is very clear and, injections should be prescribed when oral medication is ineffective. Moreover places where syringes are prepared should be properly checked and re-packing of used syringes should be strictly observed and the involved persons should be punished. There is some short falls in our study as it is hospital based and was conducted only in diseased children. Another study is needed on a large scale to measure the burden of this problem and to prevent its occurrence.

## CONCLUSIONS

HCV infection is quite common in children. Awareness programs are required, especially for safe blood transfusion and use of injections for treatment purpose.

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