

## SHORT COMMUNICATION

# is the high FreQUENCY of diabetes type 2 in chronic hepatitis c virus infection due to strong family history?

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## INTRODUCTION

Various epidemiological studies have suggested that hepatitis C virus (HCV) infection is a risk factor for the development of diabetes mellitus (DM) type 2.<sup>1-6</sup> The etiological factors were initially thought to be cirrhosis but further studies differentiating between HCV and hepatitis B virus (HBV) related infection have shown that patient with HCV infection have a higher prevalence of Diabetes mellitus type-2.<sup>7</sup>

A retrospective analysis of 1117 patients with chronic viral hepatitis found that diabetes was present in significantly more patients with hepatitis C compared to hepatitis B virus (HBV) infection (21 versus 12 percent).<sup>2</sup> HCV genotype 2a was over represented among the diabetic patients. In another case control trial, the prevalence of HCV infection was significantly higher among patients with diabetes mellitus compared to controls (4.2 versus 1.6 percent). Patients undergoing liver transplantation for HCV also appear to be at increased risk for developing diabetes mellitus following transplantation<sup>8</sup>.

The cause of these associations is unknown, but their magnitude may be overestimated based upon the retrospective nature of the reports and due to some of the following factors.<sup>9</sup>

- a. Patients with diabetes have more parenteral exposures than the general population, placing them at increased risk for transmission of viruses.
- b. HCV infection becomes chronic more often than HBV infection.
- c. Not all studies are controlled for the presence of cirrhosis, which may be associated with impaired glucose tolerance.

Only one study that we came across which was from Saudi Arabia had mentioned other variables and showed that Anti-HCV-positive type-2 diabetics, when compared to non-diabetics, had a higher Body mass index (BMI), a frequent family history of DM, elevated serum transaminases, thrombocytopenia, and liver cirrhosis on biopsy.<sup>10</sup> With this hypothesis in mind, we conducted the present study to determine other variables such as familial inheritance as the cause of higher frequency of DM type 2 among patients with HCV infection.

## METHODS

This was an analysis of cases seen in an outpatient department of a private medical university hospital between July 2002 - Jan 2003. Phone calls were made to the patients if data was not completely found in the charts. A total of 212 patients with DM type 2 were retrieved, out of which 100 were HCV positive and 112 were HCV negative. HCV was detected either by detection of antibodies to HCV or HCV RNA in the

serum. Family trees were drawn on each patient with emphasis on history of DM type 2 in any family member. According to this, two groups: one with HCV positive and the other group with HCV negative patients were made. Each group was divided into five categories as follows. 2 patients from HCV negative group were excluded as their parents adopted them and therefore family history was not available.

## RESULTS

Out of selected cases, 100 were HCV positive and 112 were HCV negative. In both the groups, 68% patients were males, and there was no significant difference between males and females ( $p=0.98$ ) ratio in the two groups. Mean age was 46 years in both groups (range 30-74 years in group 1) vs (range 26-70 years in group 2).

There was no significant difference in history of DM among both or one parents in both the groups ( $p=0.18$ ). On the other hand, a significant difference was observed in history of DM in siblings in the two groups ( $p=0.026$ ) as shown in the table.

**Table-1: Relationship of Diabetes mellitus type 2 and Hepatitis C Virus infection**

History of DM type 2	HCV + DM +		HCV – DM +	
	n=100	%	n=112	%
In one parent	60	60	54	49.09
In both parents	7	7	6	5.45
In siblings	28	28	17	15.45
In relatives other than first degree	5	5	3	2.72
No family history	0	0	30	27.27

## CONCLUSIONS

We found that DM type 2 occurred with increasing frequency among patients with Hepatitis C. In our group of patients, we explained that increased occurrence was associated with family history of DM. This variable effect may be one of the reasons of higher frequency of DM type 2 in this group of patients. A prospective study comparing the incidence and prevalence of DM type 2 in HCV infected and non-infected patients are warranted which may further detect other variables explaining this effect.

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