



LETTERS TO THE EDITOR

Association of hepatitis C virus infection and diabetes

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Abstract

Epidemiologic studies have suggested a relation between hepatitis C virus (HCV) infection and diabetes mellitus. HCV infection is emerging as a metabolic disease, and diabetes mellitus as a risk factor for HCV infection. However, some data on the prevalence of antibodies to HCV in patients with diabetes are conflicting. These seroprevalence data should be interpreted with caution. Some potential bias may occur in those clinic-based studies that target a specific disease group. In this letter we explain some reasons for these conflicting studies.

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TO THE EDITOR

We read with great interest the article of Kaabia and collaborators^[1] and we congratulate them for the originality

of this interesting study in the Maghreb area. In this study, Kaabia and colleagues performed hepatitis C virus (HCV) screening in 1269 diabetic patients and 1315 non-diabetic patients, attending in the same health centers in Sousse, Tunisia. Authors found that the frequency of HCV antibodies was low in diabetic patients and in the control group, with no significant difference between the groups (1.3% *vs* 0.6%, $P = 0.057$).

The results of this study do not match those of several studies performed in numerous areas in the world, which found a higher prevalence of hepatitis C in diabetic patients^[2,3]. Moreover, in Kaabia's study, anti-HCV seroprevalence was significantly higher in type 2 diabetes sub-group than in the control group (1.4% *vs* 0.6%, $P = 0.04$). Anti-HCV seropositivity was detected only in one patient of 121 patients with type 1 diabetes, which was lower than in type 2 diabetes group, but the difference was not statistically significant (0.82% *vs* 1.4%, $P = 0.50$).

Kaabia's study has several deficiencies; their results must be interpreted with precaution. The diabetic patients were more aged than non-diabetic patients, it will be more interesting if the authors have compared the HCV seroprevalence between the two groups with age adjustment. Another bias of selection was introduced in this study by using the prevalence and not the incidence of HCV infection. Moreover, diabetes is an independent co-factor of fibrosis in chronic hepatitis C^[4], and in patients with cirrhosis the survival rate is reduced in case of associated diabetes^[5]. The hepatitis C prevalence is underestimated than in diabetic patients. Classification errors of diabetes could be made in the group of non-diabetics. Indeed the manner in which the diagnosis of diabetes was eliminated in this group was not specified in the article. Starting from the assumption that 50% of diabetics are not diagnosed, we wonder in which group the new cases of screening diabetes were classified? It is also impossible to establish a chronological relation between the diabetes and hepatitis C in this transversal study and it is possible that the infection by virus C precedes the occurring of diabetics. The authors have not compared the risk factors of hepatitis C in infected diabetic patients and in non-infected diabetic patients. Several studies found that diabetic patients infected with HCV had the same frequency in drug-addiction past and in blood transfusion than diabetic patients not infected with HCV. And these factors when they exist are present before the occurring of diabetes^[6].

Our group presented in 2006 in the ALFEDIAM Congress in Paris a study suggesting that the prevalence of hepatitis C is higher in Algerian diabetic patients^[7]. In

this retrospective study, we investigated hepatitis C virus markers in 739 patients attending internal medicine department of university hospital center of Batna (Algeria) from January to December 2005. One hundred and fifty nine patients (73 men and 86 women) with diabetes mellitus diagnosed by conventional criteria^[8] were studied. Their mean age was 60 years. Type 2 diabetes was present in 90% of patients. The control group consisted of 580 non-diabetic patients (229 men and 351 women). Their mean age was 50 years. Anti-HCV serology was determined in both groups using the third-generation micro-particle enzyme immunoassay. Anti-HCV seropositivity was 17.5% in diabetic patients and 8.4% in non-diabetic patients ($P < 0.01$). Despite our small size sample, we found a statistically significant higher prevalence of hepatitis C among diabetic patients. However, after adjustment for age, this difference is statistically significant only in patients aged between 40 and 65 years (22.2% *vs* 9.3%, $P = 0.024$).

Is diabetes mellitus a risk factor for HCV infection; or is this later a risk factor for type 2 diabetes mellitus? That is the question. Further studies are required to elucidate the mechanism of this interesting association.

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