Does hepatitis C virus (HCV) infection have a role in the pathogenesis of diabetes mellitus in patients with beta thalassemia?

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Introduction

In patients with Beta thalassemia major (TM) The interplay between liver siderosis and hepatitis C virus (HCV) infection may facilitates the progression to insulin resistance (IR) and diabetes mellitus (DM). This potential effect may be also related to different hepatitis C virus (HCV) genotypes.

Objectives

Many TM patients are infected with either HCV. [4] Therefore, we aimed to explore if there is any association between DM and HCV-RNA positivity with different genotypes

Patients and Methods

148 TM patients (age range: 15-53 years; 72 males and 76 females), 78 were HCV-RNA positive. Fifteen patients (10.1%) had type 1 DM.

The HCV genotype was done using specific primers in all thalassemic patients with DM as well as in 46 non diabetic TM patients.

Serum HCV-RNA was detected using a sensitive polymerase chain reaction assay.

The frequency of DM in TM patients with HCV + and HCV-RNA -, and HCV + and HCV-RNA + was assessed

Results

The commonest genotype in TM patients with and without DM was 1b (Table).

HCV genotype did not differ statistically between diabetic and non-diabetic thalassemic patients (chi-square test).

The frequency of DM did not differ among TM patients with HCV + and HCV-RNA -, and HCV + and HCV-RNA +.

No significant correlation was observed between biochemical parameters (albumin, total protein, liver enzymes or INR) serum ferritin, insulin like growth factor 1 (IGF-I) on the one hand and HCV-RNA status on the other hand.

HCV genotypes in thalassaemia major (TM) patients with and without insulin dependent diabetes mellitus

HCV genotype	TM patients with diabetes	TM patients without diabetes
1b	9 (60%)	27(58.6%)
1b/2	0	1 (2.1%)
2	4 (26.6%)	14 (30.4%)
2a,2c	1 (6.6%)	1(2.1%)
3a	1 (6.6%)	3 (6.5 %)

Interpretation

Our study did not show statistically significant association between DM and HCV-RNA positivity including its different genotypes. However, before the dogma on the role of IR in the pathogenesis of HCV infection is excluded, we believe that these findings need to be replicated in larger studies and across other ethnic groups.

Conclusion

There was no statistically significant association between DM and HCV-RNA positivity. larger studies are required for acquiring better knowledge about the pathogenic mechanisms that link HCV infection with abnormal glycemic abnormalities. This will enable us to early identify patients who are at high risk of developing DM and to select the best therapeutic option.

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