Frequency of occurrence of anti-HAV IgG in patients with HIV, hepatitis B and hepatitis C infection in Nizhny Novgorod, Russia

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Abstract

Objectives: The anti-HAV IgG is a principal marker of hepatitis A infection, which is the evidence of past hepatitis A or immunity acquired as result of vaccination.
This usually self-limiting disease does not lead to chronic hepatitis, but co-infection with other hepatitis viruses or HIV may aggravate severity of the disease. The aim of this study was to evaluate the prevalence of anti-HAV-IgG in patients with HIV, HBV and HCV infection in comparison with the population of healthy blood donors in Nizhny Novgorod, Russia.

Methods: Samples from blood donors (n = 675) were provided by Nizhny Novgorod Regional Blood Transfusion Station. Samples from HIV,HBV and HCV infected patients (n=842) were provided by Regional Center for prevention and control of AIDS and infection diseases, Nizhny Novgorod. All samples were studied for presence of anti-HAV-IgG with the EIA kit "DS-EIA-ANTI-HAV-IgG-RECOMB" (RPC "Diagnostic Systems", Russia).

Results: The prevalence of anti-HAV-IgG in the population of donors in Nizhny Novgorod was 41% (274/675), that is comparable with the existing data. Among HIV infected patients anti-HAV-IgG were detected in 63.7% (165/259) of cases, 88.9% (8/9) of them were from patients with recently acquired HIV infection and 62.8% (157/250) were from patients with long-standing HIV infection. The level of detection anti-HAV-IgG in patients with hepatitis B was 75.1% (290/386). 9.1% (23/35) of them were detected in patients with acute hepatitis B, and 76.0% (267/351) – in patients with chronic hepatitis B. The frequency of anti-HAV-IgG in HCV infected patients was 58.4% (115/197); 54.6% (53/97) of them were from patients with acute hepatitis C and 62.0% (62/100) were from patients with chronic hepatitis C. The total number of positive samples containing anti-HAV-IgG among HIV, HBV and HCV infected patients was 66.8%.

Conclusion: Although HAV does not necessarily share the same risk factors relevant for HBV, HCV or HIV transmission, the prevalence of anti-HAV IgG is much higher in infected people than in healthy blood donors. These data will be essential for planning the future vaccination strategies and for better sanitation programme.

Introduction

In recent time an increase of the incidence of hepatitis A is globally observed. Recently, there is a decline in the incidence of HAV monoinfection and a simultaneous growth of HAV co-infection. The co-infection with other hepatitis viruses or HIV may aggravate severity of the disease. The main marker of the infection which is the evidence of past hepatitis A or immunity acquired as the result of vaccination are the IgG antibodies to hepatitis A virus. In a population of healthy donors, the prevalence of anti-HAV-IgG is approximately 45%.

Purpose

The aim of this study was to determine the level of the co-infection with hepatitis A in HIV, HBV and HCV-infected patients in Nizhny Novgorod, Russia. Donor blood serum samples were studies as the control group.

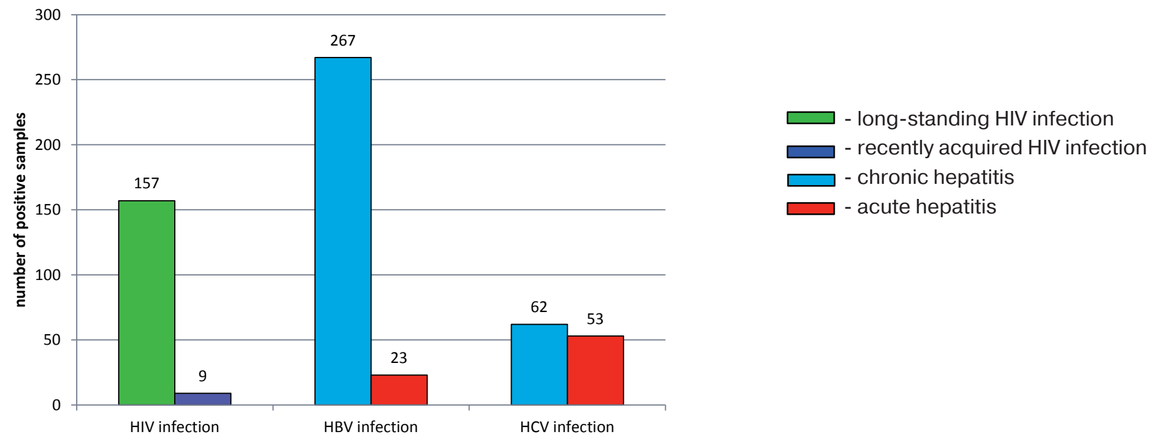
Materials and methods

ELISA-test "DS-EIA-ANTI-HAV-IgG-RECOMB (RPC "Diagnostic Systems", Russia) was used for determination of IgG antibodies to hepatitis A virus. The test represents a two-step ELISA method with a minimum detection of IgG concentration in the sample - 20 mIU/ml (referenced against WHO anti-Hepatitis A Immunoglobulin 2nd standard, 1998). Blood samples from HIV, HBV and HCV-infected patients with the different stages of disease (n=864) and healthy donors (n = 675) were used for detection of antibodies to HAV. All positive samples were confirmed in the CE-marked reference test.

Results

The results show that the detection rate of anti-HAV-IgG during the examination of patients with HIV, HBV and HCV infections amounted to 66.8%. Among HIV infected patients anti-HAV-IgG were detected in 63.7% (165/259). 8/9 (88,9%) of them were from patients with recently acquired HIV infection and 157/250 (62,8%) were from patients with long-standing HIV infection. The percentage of anti-HAV-IgG among patients with HBV infection was 75.1% (290/386). 23/35 (9.1%) of them were detected in patients with acute HBV and 267/351 (76.0%) – in patients with chronic HBV. The detection rate of anti-HAV-IgG among patients with HCV was 58.4%. 53/97 (54.6%) of them were from patients with acute HCV and 62/100 (62.0%) were from patients with chronic HCV. Anti-HAV-IgG among healthy donors representing the population of Nizhny Novgorod was 41% that is comparable with the existing data. The distribution of anti-HAV-IgG among the study groups is represented in table 1 and figure 1.

Distribution of anti-HAV-IgG among patients with HIV, hepatitis B and hepatitis C infections Fig.1



Prevalence of anti-HAV-IgG in the study groups Table 1

Group		Number of tested samples (n)	Number of Anti-HAV-IgG positive samples	
			n	%
HIV infected (n=259)	recently acquired HIV infection	9	8	88.9
	long-standing HIV infection	250	157	62.8
HBV infected (n=386)	acute HBV infection	35	23	9.1
	chronic HBV infection	351	267	76.0
HCV infected (n=197)	acute HCV infection	97	53	54.6
	chronic HCV infection	100	62	62.0
Control (samples from blood donors)		657	274	41.0

Conclusion

According to the study results, the level of anti-HAV-IgG among healthy donors is significantly lower than among patients with HIV infection, hepatitis B and C. It confirms the high level of mixed infection. The data can help in addressing the issues of antiviral therapy and vaccination strategy.

EV1067