

## HCV-SPECIFIC IgG1 AND IgG3 RESPONSE TO HCV INFECTION

**Objectives.** The aim of this study was evaluation of HCV-specific IgG1 and IgG3-subclass response against different antigens of hepatitis C virus in commercial available HCV seroconversion panels and in sera of patients with chronic HCV infection.

**Methods.** Samples (n=22) from 9 seroconversion panels (SeraCare Life Sciences; Zeptomatrix) were used in this investigation. Samples obtained from the persons at the period of seroconversion (from 10 to 76 days after first bleed according the data from datasheets of panel) were analyzed. Additionally 29 serum samples from patients with chronic HCV infection from Infectious Diseases hospitals, N. Novgorod, Russia were evaluated. Purified recombinant HCV core, NS3, NS4, NS5 proteins (cat. AHCV111; AHCV 207; AHCV201; AHCV111; AHCV401; RPC Diagnostic Systems) were used as capture antigens. HRP-labeled monoclonal antibodies to human IgG1 (Zymed Laboratories) and IgG3 (GenWay Biotech) subclasses were used.

**Results.** Distribution of HCV specific IgG subclass response in tested groups is presented in the table.

		HCV acute infection		HCV chronic infection		Fisher's exact test
anti-core	IgG1	15/22	68%	29/29	100%	p=0.001
	IgG3	19/22	86%	20/29	69%	p=0.192
	IgG1+ IgG3	15/22	68%	20/29	69%	p=1.000
anti-NS3	IgG1	17/22	77%	26/29	90%	p=0.268
	IgG3	20/22	91%	14/29	48%	p=0.002
	IgG1+ IgG3	17/22	77%	14/29	48%	p=0.046
anti-NS4	IgG1	5/22	23%	20/29	69%	p=0.002
	IgG3	9/22	41%	10/29	35%	p=0.772
	IgG1+ IgG3	6/22	27%	7/29	24%	p=1.000
anti-NS5	IgG1	0/22	-	15/29	52%	-
	IgG3	2/22	9%	14/29	48%	p=0.005
	IgG1+ IgG3	1/22	5%	10/29	35%	p=0.015

HCV core-specific antibodies of both IgG1 and IgG3 subclasses were detected in 68% of samples with acute and in 69% of chronic HCV infection. IgG1+IgG3 against NS3 were detected in 77% of samples from seroconversion panels and in 48% of specimens from chronic HCV infected patients. Similar frequencies of simultaneous detection of anti-NS4 IgG1 and IgG3 were in compared groups – 27% and 24%. In detection of both studied subclasses of anti-NS5 significant difference (p=0.015) was observed between late and recent infection.

There was no difference in frequency of anti-core and NS4 IgG3 detection between tested groups. Anti-NS3 IgG3–positive response was observed in 91% of the patients with acute stage of infection, whereas 48% had detectable anti-NS3 IgG3 in chronic stage (p=0.002). In contrast IgG3 subclass against NS5 was detectable more often among patients with chronic (48%) than recent (9%) HCV infection. Frequency of detection of IgG1 to core and NS4 HCV proteins was higher in specimens of chronic than acute infection. No difference in anti-NS3 IgG1 was observed between studied groups.

**Conclusion.** There is significant difference between acute and chronic HCV infection in IgG1 and IgG3 subclass specific response to some viral proteins. It can be useful in diagnostics of early stage of infection especially in diagnostic test design.