Hepatitis B and C infections among injecting drug users in Istria County, Croatia

Jasmina Kucinar[1], Tatjana Vilibic-Cavlek[2], Lorena Lazaric-Stefanovic[1], Jasna Valic[1], Branko Kolaric[3]

[1]Microbiology Service, Istria County Institute of Public Health, Pula, Croatia, [2]Department of Virology, Croatian National Institute of Public Health, Zagreb, Croatia and School of Medicine, University of Zagreb, Zagreb, Croatia, [3]Department of Epidemiology, Teaching Institute of Public Health "Dr Andrija Stampar", Zagreb and Medical Faculty, University of Rijeka, Rijeka, Croatia

Viral hepatitis represents a major health problem in intravenous drug users (IDUs). The aim of the study was to analyze the prevalence of hepatitis B virus (HBV) and hepatitis C virus (HCV) infection among IDUs in Istria County. Istria is the largest Croatian peninsula located at westernmost part of Croatia, at the crossroads of Central and South-Eastern Europe, along the western branch of the Balkan route of the illicit drug trafficking.

● Patients and methods:

During 2014, a total of 49 IDUs were tested for the presence of hepatitis B surface antigen (HBsAg), hepatitis B core total antibodies (Anti-HBc) and hepatitis C virus antibodies (Anti-HCV). Study participants were recruited from the counselling center at the Istria County Institute of Public Health. Serologic tests were performed using an enzyme-linked fluorescent assay (VIDAS: HBs Ag Ultra, HBs Ag Ultra Confirmation, Anti-HBc total II, Anti-HCV; bioMérieux, France). Anti-HCV repeatedly reactive samples were further confirmed using a third generation line immunoassay (INNO-LIA HCV Score, Fujirebio, Belgium).

● Results:

The overall prevalence of HBsAg, anti-HBc and anti-HCV was 2% (95%CI=0.1-10.9), 38.8% (95%CI=25.2-53.8) and 75.5% (95%CI=61.1-86.7), respectively. Male participants predominated (81,6%). Most of the participants clustered in the 30-49 age group (83.6%). Prevalence of anti-HBc antibodies increased progressively with age starting sharply with 30-year-olds (p=0.008). Sharing injection equipment correlated with HCV infection. Higher seroprevalence rates were found in IDUs who shared injection equipment occasionally/frequently than in participants that did not report sharing equipment (anti-HCV 88.9%/66.7% *vs* 57.9%, p=0.049) (table 1). Results of the logistic regression (table 2) showed that sharing injection equipment was a significant risk factor for contracting HCV infection (IDUs who shared equipment occasionally: OR=4.32, 95%CI=2.28-8.20; AOR=4.6, 95%CI=2.21-9.57, IDUs who shared equipment frequently: OR=17.11, 95%CI=6.72-46.99; AOR=21.18; 95%CI=7.27-61.64).

Table 1. Prevalence of HBV and HCV among IDUs, Istria County

Characteristic	Tested N (%)	Anti-HBc			Anti-HCV		
		N (%)	95%CI	p	N (%)	95%CI	p
Gender				0.451			0.861
Male	40 (81.6)	17 (42.5)	27.0-59.1		30 (75.0)	58.8-87.3	
Female	9 (18.4)	2 (22.2)	2.8-60.0		7 (77.8)	40.0-97.2	
Age (years)				0.008			0.122
20-29	7 (14.3)	0 (0)	-		3 (42.9)	9.9-81.6	
30-39	30 (61.2)	10 (33.3)	17.3-52.8		23 (76.7)	57.7-90.1	
40-49	11 (22.4)	8 (72.7)	39.0-94.0		10 (90.9)	58.7-99.8	
50+	1 (2.0)	1 (100)	2.5-100		1 (100)	2.5-100	
Sharing injection equipment				0.362			0.049
No	19 (38.8)	8 (42.1)	20.3-66.5		11 (57.9)	33.5-79.7	
Occasionally	27 (55.1)	11 (40.7)	22.2-61.2		24 (88.9)	70.8-97.6	
Frequently	3 (6.1)	0 (0)	0-70.8		2 (66.7)	9.4-99.2	

Table 2. Logistic regression for the risk of HBV and HCV positivity

Characteristic	Anti-HBc				Anti-HCV			
	OR	95%CI	AOR	95%CI	OR	95%CI	AOR	95%CI
Male vs. female gender	1.63	0.46-5.83	-	-	0.72	0-27-1.89	-	-
Age (one year increase)	1.14	1.09-1.20	-	-	1.15	1.10-1.21	-	-
Sharing injection equipment								
No	1		1		1		1	
Occasionally	1.75	0.81-3.80	1.36	0.57-3.26	4.32	2.28-8.20	4.6	2.21-9.57
Frequently	3.02	1.32-6.95	2.34	0.92-5.94	17.77	6.72-46.99	21.18	7.27-61.64

● Conclusion:

HBV and HCV infections are widespread among IDUs in Istria. Older age correlated strongly with HBV infection, while sharing injection equipment was the main risk factor for HCV infection.