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HEPATITIS C IN POLAND IN 2011

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ABSTRACT

BACKGROUND. Low percent of diagnosed HCV infections is an important public health problem in Poland. Registered trends of HCV incidence compared to prevalence data allow to interpret the diagnosis rate in different groups.

AIM. To assess epidemiological situation of hepatitis C in Poland in 2011 in comparison to preceding years.

METHODS. The descriptive analysis was based on data retrieved from routine mandatory surveillance system. Case classification according to 2005 definition and 2009 definition was verified on a basis of individual case reports.

RESULTS. In total there were 2151 hepatitis C cases meeting the 2005 case definition registered in 2011 (incidence 5.58 per 100,000) and the increasing trend observed since 2009 was continued. With respect to the estimated number of prevalent cases the diagnosis rate was 78 per 10,000. This indicator was lower for the rural areas, for the age group 30-49 and varied significantly across regions. The increasing trend of mortality is also of note (2009 – 137 deaths; 2010 – 167, preliminary data for 2011 – 191, mortality 0.5 per 100,000)

CONCLUSIONS. The increasing hepatitis C incidence may be a result of intensification of testing activities. Low indicator of diagnosis rate and the increasing mortality call for improvement in access to diagnosis and treatment.

Key words: *hepatitis C, epidemiology, infectious diseases, public health, Poland, 2*

INTRODUCTION

According to the latest data, the prevalence of antibodies to hepatitis C virus (anti-HCV) rose from 2.3% in 1995 to 2.8% in 2011, corresponding to approximately 185 million infected persons worldwide. A low percentage of HCV infections is diagnosed, i.e. 30-50% in the European countries and 5% in Poland. It is of special importance at present as the new therapeutic agents are developed which enable to achieve sustained virologic response in the treatment of HCV genotype 1, which is still predominant in Poland.

An important role of the epidemiological surveillance for hepatitis C is the provision of information which allows to determine the trend of hepatitis C occurrence and to identify the groups and regions where a large number of cases may remain undiagnosed.

MATERIAL AND METHODS

The epidemiological assessment of hepatitis C in Poland in 2011 in comparison to the previous years was performed on a basis of analysis of aggregated data on cases registered in 2011 and published in the annual bulletin "Infectious diseases and poisonings in Poland in 2011" (Czarkowski MP et al. Warsaw: NIPH-NIH and CSI 2012) and preliminary data on mortality obtained from the Central Statistical Office.

The hepatitis C cases were classified according to the criteria of surveillance case definition implemented in the EU (Commission Decision of 28 April 2008 amending Decision 2002/253/EC laying down case definitions for reporting communicable diseases to the Community network under Decision No 2119/98/EC of the European Parliament and of the Council). The

definition includes all laboratory confirmed cases (anti-HCV response confirmed by a confirmatory antibody test or detection of hepatitis C virus nucleic acid) irrespective of the clinical manifestation, also asymptomatic cases and potential signs of chronic hepatitis (definition of 2009). To sustain the continuity of the epidemiological surveillance in Poland, the summarizing of hepatitis C cases notified according to the definition of 2005 was maintained on a temporary basis. This definition embraces the cases with clinical symptoms and elevated liver function tests in the course of HCV infection.

The verification of cases qualification according to the particular definitions was performed in the Department of Epidemiology of NIPH-NIH on a basis of individual case reports collected by the sanitary and epidemiological stations, supplemented by medical examination and medical documentation.

The diagnosis rate was determined as estimated number of diagnosed cases per 1,000 cases in the population. Its value was calculated by comparing the number of cases registered in 2011 to the number of persons with anti-HCV antibodies identified in the population which was estimated on a basis of published data: 1) Godzik P et al. Prevalence of anti-HCV antibodies among adults in Poland – results of cross-sectional study in general population. *Epidemiological Review* 2012, 66: 575-580; 2) Flisiak R. et al. Prevalence and risk factors of HCV infection in Poland. *Eur J Gastroenterol Hepatol*. 2011, 23: 1213-7.

RESULTS AND DISCUSSION

Hepatitis C virus infections. The incidence of hepatitis C exhibits increasing tendency but it is still lower than the value observed in the years 2006-2008 (Fig.1). A total of 2,151 cases meeting the criteria of the definition of 2005 were registered in 2011. The incidence rose by approximately 5.5% and 9.8% in com-

parison to the year 2010 (from 5.29 to 5.58 per 100,000) and 2009 (5.08), respectively. Of these notifications, 30 cases (1.4% on a national scale) constituted mixed infections with HBV and HCV (tab. I). The significant differences are observed between the voivodeships. The incidence ranged from 0.54 in małopolskie voivodeship and 2.92 in śląskie voivodeship to 13.88 in lubuskie voivodeship, which significantly exceeds the average for the country (tab. I). A significant increase in the number of HCV infections was observed in particular voivodeships. In comparison to the year 2010, the incidence has risen above 50% in the following voivodeships: podlaskie (by 324%), podkarpackie (by 109%) and zachodniopomorskie (by 79.1%). Having compared it to the median for the years 2005-2009, a significant increase was observed in lubuskie voivodeship (by 382%). It should be emphasized that in many voivodeships a significant decrease in the hepatitis C incidence was observed compared to the median for the years 2005-2009 with the highest incidence in: lubelskie (by 61%), śląskie (by 53%) and świętokrzyskie (by 51%) voivodeships (tab. I).

The incidence of hepatitis C in urban areas doubly exceeded the incidence in rural areas and their respective share was 6.90 and 3.54. Its value was also higher in men than women (6.42 and 4.80). It should be emphasized that the incidence in the group of women aged 50 years was higher than in men. The highest incidence by sex was observed in the group of 45-59 and 50-59 years old in men and women, respectively. Compared to the year 2010, with the overall increase in the incidence of 5.5%, the incidence in rural areas rose by 8.8% (tab. II).

A total of 2,189 cases meeting the criteria of the definition of 2009 was registered in 2011 (incidence of 5.68 per 100,000 inhabitants), which constituted 23 fewer cases than in 2010. The analysis of the method of cases qualification indicates that there are still difficulties in qualifying and reporting the cases according to this definition.

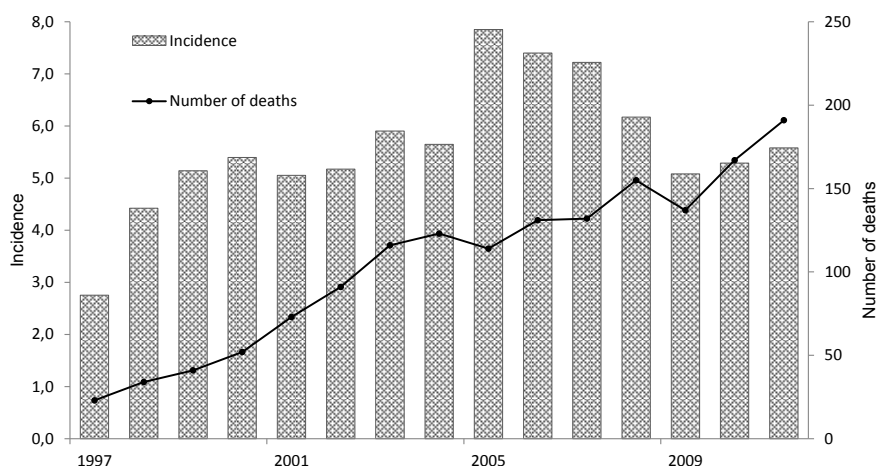


Fig.1. Hepatitis C in Poland in 1997-2011. Incidence per 100,000 population and number of deaths.

Table I. Hepatitis C in Poland in 2005-2011. Number of cases and incidence per 100.000 population. number and percentage of HCV/HBV co-infection by voivodeship.

Province	Median 2005-2009		2010*		2011*				2011 (2009 def.)	
			total		total		w tym HCV/HBV		total	
	N	inc.	N	inc.	N	inc.	N	%	N	inc.
1.Dolnośląskie	331	11.51	245	8.52	240	8.23	2	0.8	279	9.57
2.Kujawsko-pomorskie	181	8.76	153	7.39	151	7.20	0	0.0	177	8.44
3.Lubelskie	231	10.59	110	5.10	91	4.18	1	1.1	95	4.37
4.Lubuskie	29	2.88	140	13.85	142	13.88	1	0.7	164	16.03
5.Łódzkie	272	10.53	168	6.62	180	7.09	4	2.2	197	7.76
6.Małopolskie	34	1.04	25	0.76	18	0.54	0	0.0	25	0.75
7.Mazowieckie	394	7.63	443	8.47	383	7.26	9	2.3	295	5.59
8.Opolskie	47	4.50	79	7.67	62	6.10	0	0.0	61	6.01
9.Podkarpackie	46	2.19	34	1.62	72	3.38	1	1.4	68	3.20
10.Podlaskie	28	2.33	24	2.02	103	8.57	1	1.0	98	8.15
11.Pomorskie	117	5.30	77	3.44	96	4.21	2	2.1	46	2.02
12.Śląskie	287	6.17	146	3.15	135	2.92	2	1.5	152	3.28
13.Świętokrzyskie	174	13.62	88	6.94	85	6.64	3	3.5	97	7.58
14.Warmińsko-mazurskie	32	2.24	39	2.73	44	3.03	2	4.5	52	3.58
15.Wielkopolskie	303	8.93	211	6.18	278	8.06	2	0.7	317	9.19
16.Zachodniopomorskie	75	4.43	39	2.30	71	4.12	0	0.0	66	3.83
POLSKA	2753	7.22	2021	5.29	2151	5.58	30	1.4	2189	5.68

* meeting 2005 definition

Hospitalization and mortality due to hepatitis C.

A total of 1,407 persons were hospitalized in Poland due to hepatitis C (definition of 2005) in 2011, which constitutes 65.4% of all infections. The percentage of hospitalization in 2011 was comparable to the one observed in the previous years: from 40.0% in świętokrzyskie voivodeship to 83.3%, 85.4% and 90.6% in małopolskie, kujawsko-pomorskie and łódzkie voivodeships, respectively. Furthermore, the percentage of hospitalized cases who met the criteria of definition of 2009 was comparable with the value for cases that met the definition of 2005 (60.3%).

According to the preliminary data of the Central Statistical Office, a total of 191 persons died due to hepatitis C in 2011 (mortality of 0.50 per 100,000), including 6 fatal cases because of the acute stage of infection. The

mortality due to hepatitis C rose by 14.4% compared to the mortality observed in 2010 (Fig. 1). The number of fatal cases due to acute hepatitis C was insignificantly lower than in 2010 (6 compared to 8 deaths).

Comparison with the estimated number of infections in the population. According to Godzik et al., anti-HCV antibodies are detected in 0.86% of adults in the population, i.e. approximately in 270,000 persons. In 2011, 2,101 hepatitis C cases were diagnosed in the group of 18 years old and above, i.e. circa 7.8 per 1,000 persons with anti-HCV antibodies in the population. Stratifying on sex, age and location, the value of diagnosis rate is comparable in men and women, lower in the group of 30-49 years old (5.7) and inhabitants of rural areas (5.0) and diverse in the inhabitants of urban areas and voivodeships (Fig. 2).

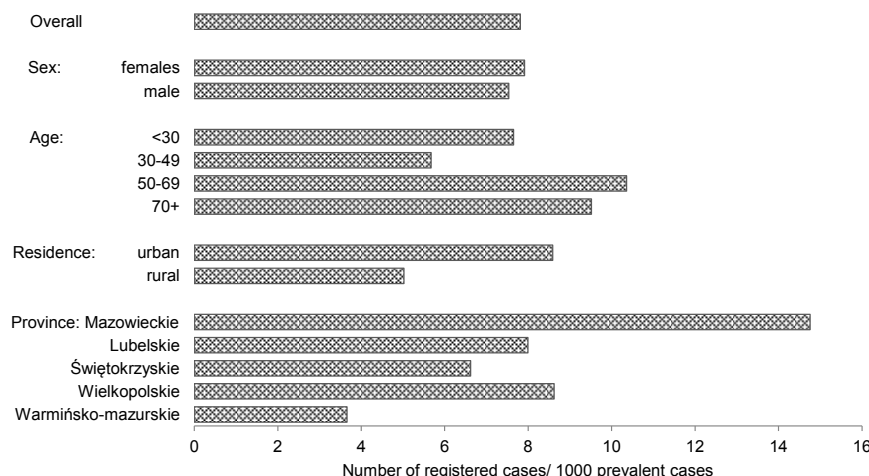


Fig. 2 The estimated number of cases registered in 2011 per 1000 prevalent cases in the population (anti-HCV+), by demographic factors

Tabela II. Hepatitis C in Poland in 2011. Number of cases, incidence per 100.000 population and percentage by age, sex and location (urban/rural)

Age group	Sex						Residence						Total		
	Male			Female			urban			rural					
	N	inc.	%	N	inc.	%	N	inc.	%	N	inc.	%	N	inc.	%
0-4	6	0.57	0.5	4	0.40	0.4	8	0.67	0.5	2	0.23	0.4	10	0.48	0.5
5-9	3	0.32	0.3	1	0.11	0.1	2	0.20	0.1	2	0.25	0.4	4	0.22	0.2
10-14	2	0.20	0.2	8	0.84	0.8	7	0.67	0.4	3	0.33	0.6	10	0.51	0.5
15-19	32	2.64	2.7	20	1.73	2.1	34	2.65	2.1	18	1.65	3.4	52	2.19	2.4
20-24	92	6.42	7.7	55	3.99	5.8	97	5.90	6.0	50	4.28	9.3	147	5.23	6.8
25-29	127	7.69	10.6	65	4.05	6.8	155	7.68	9.6	37	2.99	6.9	192	5.90	8.9
30-34	156	9.81	13.0	65	4.20	6.8	172	8.68	10.6	49	4.24	9.2	221	7.05	10.3
35-39	108	7.58	9.0	56	4.03	5.9	122	7.10	7.5	42	3.83	7.9	164	5.83	7.6
40-44	110	9.11	9.2	58	4.89	6.1	130	9.23	8.0	38	3.86	7.1	168	7.02	7.8
45-49	133	10.88	11.1	97	7.95	10.2	174	12.01	10.8	56	5.64	10.5	230	9.42	10.7
50-54	131	9.19	10.9	136	9.21	14.3	201	11.05	12.4	66	6.10	12.3	267	9.20	12.4
55-59	109	7.84	9.1	148	9.78	15.5	198	10.33	12.3	59	5.97	11.0	257	8.85	11.9
60-64	77	6.91	6.4	97	7.48	10.2	128	7.93	7.9	46	5.77	8.6	174	7.21	8.1
65-74	62	5.36	5.2	90	5.65	9.4	106	5.93	6.6	46	4.78	8.6	152	5.53	7.1
>75	49	5.90	4.1	54	3.23	5.7	82	5.37	5.1	21	2.15	3.9	103	4.12	4.8
Total	1197	6.42	100.0	954	4.80	100.0	1616	6.90	100.0	535	3.54	100.0	2151	5.58	100.0

According to the publication of Flisiak et al. of 2011, the prevalence of HCV-RNA (active HCV infection) in adults in Poland amounts to 0.6%, which constitutes circa 188,000 infected persons. Referring to the number of diagnosed persons, the diagnosis rate is estimated to be 11.2/1,000.

SUMMARY

In 2011, the incidence remained comparable to the incidence in the years 2009-2010, with a slightly increasing tendency. It constitutes a reverse of decreasing tendency observed in 2006-2009. However, concluding from this about the spread of the disease is difficult. Comparison with the results of Godzik et al. and Flisiak et al. indicates that HCV infection is to a large extent undiagnosed: in 2011, the infection was identified only in approximately 8 per 1,000 prevalence cases (diagnosis rate of 7.8/1,000).

Thus, the enhanced access to diagnostics, e.g. by conducting screening programs may have an influence on the increase in the number of registered hepatitis C cases. In the years 2010-2011, free of charge diagnostics of HCV was offered during epidemiological studies and prophylactic programmes (e.g. STOP HCV Programme of the National Sanitary Inspectorate or prophylactic programme "I have no HCV" of the National Chamber of Laboratory Diagnosticians in 2011).

The value of diagnosis rate, i.e. 7.8/1,000 (even 11.2/1,000 in reference to the persons with active infection) remains worryingly low. Because of the fact that the data from the epidemiological surveillance were used, the low value of the rate could result from the insufficient reporting of identified HCV infections.

The surveillance system for hepatitis C has not been analyzed in terms of the completeness of notifications. However, the number of persons being hospitalized may serve as a reference. This number is estimated by the Polish Group of Experts and amounts to 4,000 persons annually. This number indicates that underreporting may occur. However, it does not explain the observed value of the diagnosis rate. In the group of persons receiving treatment, patients who undergo re-treatment and persons with diagnosis of HCV infection and registered in the previous years may be present. On the other hand, in the studies on prevalence the cases who were diagnosed earlier have not been excluded. Consequently, the value of rate could be low with the high percentage of earlier identified infections in population. Nevertheless the previous publications indicate that the percentage of earlier diagnosed infections in Poland remains at the exceptionally low level. Thus, the value of the rate reflects the actual low diagnosis of HCV infections in Poland.

Furthermore, the diagnosis rate in the rural areas tends to be significantly worse (rate 5.0), indicating that the lower incidence in the rural areas is connected with the worse diagnostics to a particular extent. This suggests an urgent necessity to enhance the access to the HCV diagnostics, especially in these areas. The detailed analysis of individual case reports suggests that the profile of risk factors connected with acquiring the infection in the rural areas differs from the profile observed in urban areas. It may additionally contribute to the higher incidence observed in these areas.

The data on mortality in 2011 confirms a marked increasing tendency (more than 10% on an annual basis). Deaths occur mainly as the result of the complications of untreated chronic hepatitis C. The treatment of the

patients with less advanced scarring of the liver brings better effects. However, it has been recently established that even in the advanced stages of disease, the treatment may prolong the patient's life expectancy. Thus, the increasing mortality due to hepatitis C is a next reason for expanding the access for HCV diagnostics and treatment in Poland.

CONCLUSIONS

1. An increasing tendency of hepatitis C incidence observed in 2009-2011 may be a result of an enhanced identification of cases resulting from the better access to testing in this period. For better understanding of hepatitis C epidemiological situation, monitoring prevalence would be recommended.
2. A low diagnosis rate and increase in the mortality due to hepatitis C indicates the urgent necessity to

enhance the secondary prophylaxis of hepatitis C, including diagnostics and access to the treatment of this disease.

3. Especially low diagnosis rate of the hepatitis C cases in the rural areas and in particular voivodeships should encourage prioritization of these areas while planning the secondary prophylaxis activities.

Received: 12.02. 2013

Accepted for publication: 21.02. 2013

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