Natalia Parda, Magdalena Rosińska, Małgorzata Stępień

HEPATITIS C IN POLAND IN 2013*

Department of Epidemiology
National Institute of Public Health-National Institute of Hygiene in Warsaw

ABSTRACT

INTRODUCTION. Since 1997, hepatitis C (HCV infection) is registered separately in epidemiological surveillance in Poland. Having considered the predominance of chronic infections of long-term asymptomatic course, the number of infections detected in successive years and registered in surveillance system does not reflect the actual dynamics of hepatitis C epidemiological situation. To a large extent, it is dependent on current HCV testing practices. Furthermore, it may also result from modifications introduced to the regulations of HCV case notification.
OBJECTIVE. This article aims at evaluating the epidemiological situation of hepatitis C in Poland in 2013 with the reference to the data from previous years.
MATERIAL AND METHODS. Epidemiological situation of hepatitis C in Poland was analyzed on a basis of aggregated data from routine surveillance system published in annual bulletin "Infectious diseases and poisonings in Poland in 2013"(Czarkowski MP et al. Warsaw: NIPH-NIH and CSI, 2013). Data on hepatitis C mortality was derived from the Demographic Surveys and Labour Market Department of the Central Statistical Office.
RESULTS. In 2013, a total of 2,705 (incidence 7.03 per 100,000) HCV infections meeting 2005 definition were reported in Poland, including 35 co-infections with HCV and HBV (1.3%). Having compared to 2012, there was an increase in incidence by 15% (2,359; 6.12). In 2013, 2,641 cases (6,86) meeting 2009 definition were registered. Compared to 2012, it was an increase by 16% (2,268; 5.89). In 2013, 175 HCV fatal cases were reported, of whom only 2 were due to the acute stage of disease.
CONCLUSIONS. In recent years, a societal burden resulting from undiagnosed or untreated chronic HCV infections is on the increase. It is demonstrated by high HCV mortality and increasing trend of incidence of symptomatic chronic hepatitis C (2005 definition) and hospitalizations.

Key words: *hepatitis C, epidemiology, infectious diseases, public health, Poland, 2013*

INTRODUCTION

Hepatitis C (HCV infection) is one of the most serious public health problems in the 21th century. According to the data of the World Health Organization (WHO), the number of persons with chronic hepatitis C in the European Region amounts to 15 million. Furthermore, ca 86,000 fatal cases due to chronic hepatitis C-related sequelae are reported each year. It should be highlighted that the number of hepatitis C cases registered in particular European countries does not reflect the actual epidemiological situation of hepatitis C. To a large extent, it results from long-term asymptomatic course of disease leading to a low detection rate of HCV infections.

In Poland, an estimated 320,000 persons (0.95%) are reported to have anti-HCV antibodies while the number of active HCV infections (HCV-RNA) amounts to ca 230,000 persons (0.6%). Initial results of the project "Prevention of HCV infections", conducted in 2012-2016 by the National Institute of Public Health-National Institute of Hygiene in cooperation with the Institute of Psychiatry and Neurology in Warsaw, Medical University in Lublin and Chief Sanitary Inspectorate suggest slightly higher prevalence of anti-HCV antibodies – 1.10% and lower prevalence of HCV-RNA – 0.43% in the general population.

* Article was written under the task No.10/EM/2014.

MATERIAL AND METHODS

Analysis of epidemiological situation of hepatitis C in 2013 was conducted on a basis of aggregated data on HCV infections from routine surveillance system published in annual bulletin "Infectious diseases and poisonings in Poland in 2013"(Czarkowski MP et al. Warsaw: NIPH-NIH and CSI, 2013). Data on hepatitis C mortality were derived from the Demographic Surveys and Labour Market Department of the Central Statistical Office.

Within the surveillance system hepatitis C cases are classified according to the criteria of HCV definition applied for the purpose of surveillance in the European Union (Commission Decision of 28th 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). Hepatitis C cases were registered based on two definitions: 2005 definition, including symptomatic cases or cases with elevated aminotransferase levels and meeting laboratory criteria (hepatitis C virus specific antibody response) and 2009 definition, covering all laboratory-confirmed cases (hepatitis C virus specific antibody response confirmed by a confirmatory antibody test or detection of hepatitis C virus nucleic acid in serum) regardless of clinical manifestation. Analyzed year was the last to maintain 2005 definition which was introduced to ensure the continuity of epidemiological surveillance over hepatitis C.

INTERPRETATION OF RESULTS

Hepatitis C infections. In 2013, a total of 2,705 (incidence – 7.03 per 100,000) HCV infections, meeting 2005 definition, were registered, including 35 HCV/HBV co-infections (1.3%). Having compared to 2012 (2,359; 6.12) and median for 2007-2011 (2,338; 6.07), there was an increase in incidence by 15% and 16%, respectively. In 2013, a total of 2,641 (6.86) HCV cases, meeting 2009 definition, were reported. Compared to 2012 (2,268; 5.89), its value was higher by 15% (Tab. I).

HCV infections were notified in all provinces. As in the previous years, considerable disparities in incidence rates were observed between provinces (from 1.64 to 12.93). The highest incidence rates were noted in the following provinces: mazowieckie (12.93) and lubuskie (12.52), while the lowest rate was reported in małopolskie province (1.64) (Tab. I).

From the beginning of hepatitis C case registration, there are considerable disparities in incidence between urban and rural areas. In 2013, incidence reported in urban areas was nearly twofold higher compared to that in rural areas (8.59 and 4.63, respectively), with the incidence in urban areas increasing with the number of population (6.22 in cities <20,000 population and 10.80 in cities ≥ 100,000 population) (Tab. III). Having compared to the data as of 2012, the incidence increased in both urban and rural areas by ca 15%. As it was in the previous years, the incidence was higher in males (7.27) than females (6.79). Such predominance, however, is decreasing in successive years. In 1999, the difference

Table I. Hepatitis C in Poland in 2007-2013. Number of cases and incidence per 100,000 population, number and percentage of HCV/HBV co-infection by province.

Province	Median 2007-2011		2012*		2013*				2013**	
			total		total		HCV/HBV co-infections		total	
	N	inc.	N	inc.	N	inc.	N	%	N	inc.
1.Dolnośląskie	253	8.69	232	7.96	255	8.76	3	1.2	268	9.21
2.Kujawsko-pomorskie	150	7.26	175	8.34	196	9.36	4	2.0	214	10.22
3.Lubelskie	122	5.65	134	6.18	115	5.32	0	0.0	154	7.13
4.Lubuskie	60	5.94	122	11.92	128	12.52	2	1.6	152	14.87
5.Łódzkie	213	8.39	252	9.97	222	8.82	3	1.4	243	9.65
6.Małopolskie	30	0.91	43	1.28	55	1.64	3	5.5	42	1.25
7.Mazowieckie	427	8.22	443	8.37	686	12.93	10	1.5	598	11.27
8.Opolskie	56	5.41	73	7.21	51	5.06	0	0.0	48	4.77
9.Podkarpackie	44	2.10	78	3.66	88	4.13	0	0.0	92	4.32
10.Podlaskie	27	2.27	70	5.83	58	4.85	0	0.0	37	3.09
11.Pomorskie	89	4.00	65	2.84	127	5.54	0	0.0	89	3.88
12.Śląskie	204	4.41	231	5.00	254	5.51	5	2.0	165	3.58
13.Świętokrzyskie	107	8.36	143	11.21	85	6.69	1	1.2	74	5.83
14.Warmińsko-mazurskie	32	2.24	38	2.62	35	2.42	0	0.0	55	3.80
15.Wielkopolskie	285	8.26	215	6.22	311	8.98	3	1.0	364	10.51
16.Zachodniopomorskie	47	2.78	45	2.61	39	2.27	1	2.6	46	2.68
POLAND	2338	6.07	2359	6.12	2705	7.03	35	1.3	2641	6.86

*meeting 2005 definition
**meeting 2009 definition

Tabela II. Hepatitis C in Poland in 2013. Number of cases, incidence per 100,000 population and percentage by age, gender and location (urban/rural).

Age group	Gender						Residence						Total		
	Male			Female			Urban area			Rural area					
	N	inc.	%	N	inc.	%	N	inc.	%	N	inc.	%	N	inc.	%
0-4	6	0.58	0.4	1	0.10	0.1	3	0.26	0.2	4	0.47	0.6	7	0.35	0.3
5-9	0	0.00	0.0	1	0.11	0.1	0	0.00	0.0	1	0.12	0.1	1	0.05	0.0
10-14	2	0.21	0.1	3	0.33	0.2	3	0.30	0.2	2	0.23	0.3	5	0.27	0.2
15-19	21	1.89	1.5	11	1.04	0.8	22	1.90	1.1	10	0.99	1.4	32	1.47	1.2
20-24	76	5.62	5.6	71	5.46	5.3	99	6.63	5.0	48	4.14	6.8	147	5.54	5.4
25-29	113	7.18	8.3	112	7.34	8.3	156	8.25	7.8	69	5.71	9.8	225	7.26	8.3
30-34	163	10.02	12.0	108	6.83	8.0	205	10.16	10.3	66	5.54	9.4	271	8.45	10.0
35-39	173	11.49	12.8	93	6.34	6.9	198	10.80	9.9	68	5.96	9.6	266	8.95	9.8
40-44	118	9.33	8.7	73	5.87	5.4	141	9.51	7.1	50	4.88	7.1	191	7.61	7.1
45-49	139	11.81	10.3	114	9.72	8.4	191	13.89	9.6	62	6.36	8.8	253	10.76	9.4
50-54	134	10.23	9.9	146	10.82	10.8	201	12.45	10.1	79	7.56	11.2	280	10.53	10.4
55-59	142	10.06	10.5	214	14.03	15.9	257	13.51	12.9	99	9.57	14.0	356	12.13	13.2
60-64	104	8.67	7.7	157	11.30	11.6	204	11.85	10.2	57	6.57	8.1	261	10.08	9.6
65-74	97	7.65	7.2	147	8.64	10.9	188	9.61	9.4	56	5.53	7.9	244	8.22	9.0
>75	67	7.72	4.9	99	5.71	7.3	132	8.19	6.6	34	3.43	4.8	166	6.38	6.1
Total	1355	7.27	100.0	1350	6.79	100.0	2000	8.59	100.0	705	4.63	100.0	2705	7.03	100.0

amounted to 40% (males: 6.0; females: 4.3), while in 2013 the male dominance was only 7%. Male to female ratio varied between particular age groups (Tab. II). As in 2012, the highest incidence rates in males and females were reported in the following age groups 45-49 years (11.81) and 55–59 years (14.03), respectively. The largest difference in incidence was noted in the age group 35-39 years, in which incidence in males was nearly twofold higher compared to that in females, while in older age group, i.e. 50-74 years incidence in females was higher compared to males.

In 2013, an acute hepatitis C outbreak was reported in pomorskie province, in which a total of 9 persons were infected out of 28 subject to CT scan with intravenous contrast agent and MRI scan on the same day. Out of 9 infected persons, 7 were hospitalized. Epidemiological investigation revealed that the source of infection was one of the patients who was diagnosed with anti-HCV antibodies earlier. Information on his status was noted on the referral. All infected persons were examined following anti-HCV-positive patient. It was presumed that the outbreak resulted from multiple use of disposable medical devices (contrast agent injectors). Furthermore, the centre, where the outbreak occurred, was reported to disobey other standards of medical procedures.

Tabela III. Hepatitis C in Poland in 2012-2013. Number of cases and incidence per 100,000 population by location (urban/rural) with number of the population.

Residence	2012		2013	
	Number of cases	Incidence	Number of cases	Incidence
Urban area	1747	7.48	2000	8.59
< 20 000	266	5.35	307	6.22
20 - 49 000	267	6.27	298	6.98
50 - 99 000	248	7.64	223	6.90
≥100 000	966	8.88	1172	10.80
Rural area	612	4.03	705	4.63
Total	2359	6.12	2705	7.03

Hospitalization and mortality due to hepatitis C. In 2013, a total of 1,543 persons (2005 definition) were hospitalized in Poland, i.e. 57% of all HCV cases**.** Having compared to 2012 (59.7%), there was a slight decrease in the percentage of hospitalizations, but its total number increased by approximately 10%. Percentage of persons hospitalized due to hepatitis C remains stable in the last years, however, there are considerable differences observed between provinces (ranging from 28.2% to 92%). Percentage of hospitalizations below 50% was reported in three provinces, i.e. świętokrzyskie (28.2%), mazowieckie (30%) and lubelskie (46.1%) . The highest number of HCV cases was hospitalized in łódzkie (90.5%) and Podkarpackie (92%) provinces. In case of HCV cases, meeting 2009 definition, the percentage of hospitalizations was slightly lower and amounted to 54.7% (Tab. IV).

Data of the Demographic Surveys and Labour Market Department of the Central Statistical Office suggest that the number of HCV fatal cases in 2013 was 175, of whom 99% were due to chronic stage of infection. Having compared to 2012, the number of deaths was lower by 19%. Having considered previously observed increasing trend, accompanied by the increase in HCV case detection rates, such decrease in the number of deaths requires to be thoroughly analyzed (Fig. 1).

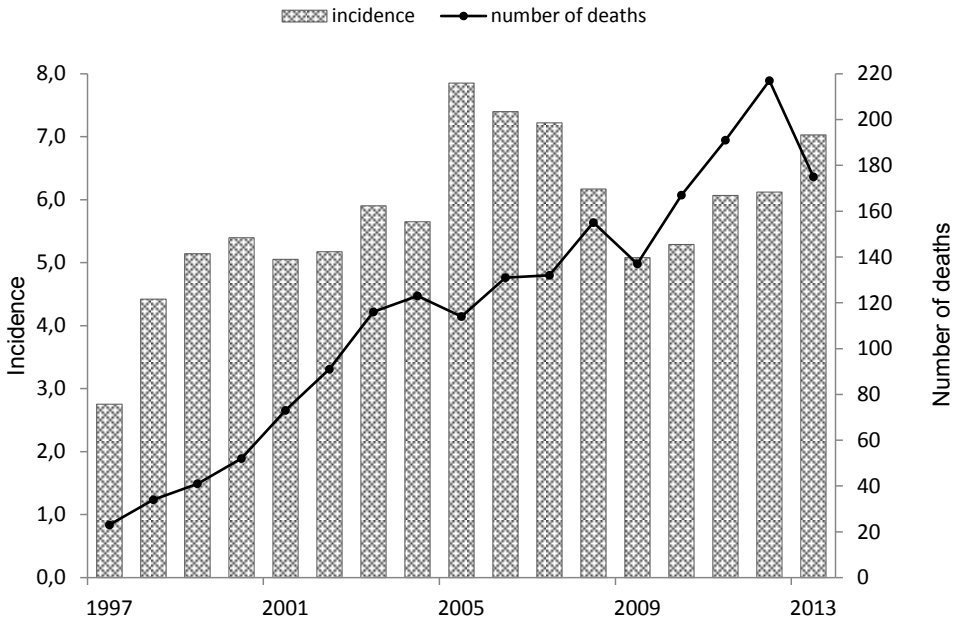

Fig.1. Hepatitis C in Poland in 1997-2013. Incidence per 100,000 population and number of deaths.

SUMMARY

In 2013, the indicators describing the epidemiological situation of hepatitis C were on the increase. Having compared to 2012, exclusively the number of fatal cases decreased. Beginning from 1997, the incidence in 2013 achieved one of the highest values (7.03) with the peak of incidence observed in 2005-2007 (7.85; 7.40 and 7.22, respectively). It suggests a continuation of increasing trend reported in 2009-2012. It should be highlighted, however, that such increase in incidence may result from enhanced access to testing than actual incidence fluctuations. Higher accessibility of testing may be associated with the following factors, i.e.: HCV seroprevalence studies in large groups of population and social campaigns accompanied by cost free HCV testing. A special attention should be drawn to the implementation of project 'Prevention of HCV infections' (2012-2016), in which cost free HCV testing is offered

Table IV. Hospitalization rate among cases of hepatitis C registered in 2012-2013 by case definition and province.

Province	2012				2013			
	2005*		2009**		2005*		2009**	
	Number of hospitalizations	Percentage ***	Number of hospitalizations	Percentage ***	Number of hospitalizations	Percentage ***	Number of hospitalizations	Percentage ***
1.Dolnośląskie	159	68.5	163	66.3	165	64.7	172	64.2
2.Kujawsko-pomorskie	140	80.0	149	76.4	156	79.6	159	74.3
3.Lubelskie	58	43.3	52	40,0	53	46.1	62	40.3
4.Lubuskie	67	54.9	62	42.8	73	57.0	68	44.7
5.Łódzkie	202	80.2	217	76.7	201	90.5	206	84.8
6.Małopolskie	34	79.1	22	66.7	38	69.1	33	78.6
7.Mazowieckie	176	39.7	150	44.5	206	30.0	180	30.1
8.Opolskie	59	80.8	61	76.3	35	68.6	28	58.3
9.Podkarpackie	77	98.7	83	98.8	81	92.0	84	91.3
10.Podlaskie	62	88.6	51	77.3	46	79.3	22	59.5
11.Pomorskie	34	52.3	34	49.3	77	60.6	57	64.0
12.Śląskie	138	59.7	112	74.2	158	62.2	125	75.8
13.Świętokrzyskie	51	35.7	49	54.4	24	28.2	30	40.5
14.Warmińsko-mazurskie	23	60.5	23	53.5	29	82.9	37	67.3
15.Wielkopolskie	95	44.2	91	33.2	173	55.6	155	42.6
16.Zachodniopomorskie	34	75.6	26	61.9	28	71.8	26	56.5
POLAND	1409	59.7	1345	59.3	1543	57.0	1444	54.7

*meeting 2005 definition
**meeting 2009 definition
*** with respect to all cases meeting the case definition

for patients of selected primary health care units and pregnant women under the care of collaborating centres. There are also activities undertaken to promote HCV testing in people who inject drugs (PWID). Increased testing for HCV may be also associated with educational campaigns which disseminate knowledge on hepatitis C in the general population as well as workers of medical and non-medical sectors.

It should be highlighted that the number of persons diagnosed with hepatitis C, regardless of clinical manifestation (2009 definition), is very close to the number of symptomatic HCV cases or those with elevated aminotransferase levels. Increasing number of HCV cases may be also indicative of higher burden resulting from long-term sequelae of undetected or untreated HCV infections. Such hypothesis is strengthened by increasing trend of mortality and hospitalizations due to hepatitis C.

Considerable disparities in hepatitis C incidence between provinces may result from the differences in running epidemiological surveillance, including HCV case classification and reporting, different practices regarding testing of asymptomatic patients (e.g. prior to diagnostic procedures or surgeries) and limited scope of educational campaigns. It suggests that there is a necessity of unifying the indications for HCV testing and organizing workshops for the workers of sanitary and epidemiological stations as to ensure the comparability of data between provinces.

Having considered a range of factors affecting the observed indicators, the epidemiological situation of hepatitis C requires to be further thoroughly monitored and analyzed, including the results of HCV seroprevalence studies, indications for testing and clinical manifestations of newly diagnosed HCV cases.

CONCLUSIONS

1. Reliable evaluation of epidemiological situation of hepatitis C requires analyzing the data from different sources, especially those relating to HCV seroprevalence.
2. Increase in incidence reported in 2013 may result from higher accessibility of HCV testing in this period.
3. Increased number of detected HCV cases suggests the necessity of ensuring the access to new therapies for higher number of patients.

Received: 10.03.2015
Accepted for publication: 19.03.2015

Address for correspondence:
Natalia Parda
Department of Epidemiology
National Institute of Public Health
National Institute of Hygiene
Chocimska 24, 00-791 Warsaw
e-mail:nparda@pzh.gov.pl
tel.: 22 542 12 48