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HEPATITIS C IN POLAND IN 2012

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ABSTRACT

INTRODUCTION. In Poland, an estimated 2,000 HCV infections are reported annually, of which chronic stage of infections predominates (>95%). It is estimated that seroprevalence of anti-HCV and prevalence of active infections in the general population amount to ca 0.95% (more than 320,000 persons) and 0.6% (230,000 persons), respectively. The alarming finding is that approximately 90% of persons diagnosed with HCV infection are unaware of the condition and consequently hepatitis C virus may be transmitted to their contacts.
OBJECTIVE. The objective of the present article is to determine the epidemiology of HCV infections in Poland in 2012 comparing to the preceding years.
MATERIAL AND METHODS. The assessment of epidemiological situation of HCV infections in Poland was based on the analysis of aggregated data from the State Sanitary Inspection, published in "Infectious diseases and poisonings in Poland in 2012" (Czarkowski MP et al. "Infectious diseases and poisonings in Poland in 2012" Warsaw, NIPH - NIH and CSI). The data on mortality due to hepatitis C, which was obtained from the Demographic Surveys and Labour Market Department of Central Statistical Office, were also employed.
RESULTS. In 2012, Poland reported 2,292 HCV infections, meeting 2005 definition (incidence 5.95), of which 1.4% were co-infections with HCV and HBV (33 cases). Compared to the data of 2011, the incidence was slightly lower (2,338; 6.07). Given 2009 definition, a total of 2,265 cases were reported (5.88), which constituted an increase of 3.5% compared to the data from the previous year (2,241; 5.82). Overall, 217 fatal cases due to hepatitis C were reported in 2012, of whom only 9 (4%) were due to acute stage of infection.
CONCLUSIONS. Compared to the data from 2011, the epidemiological situation of hepatitis C in Poland has not changed significantly. The alarming fact is the increasing number of deaths due to hepatitis C. Probably, it suggests delayed diagnosis of HCV infections. Thus, it is a necessity to promote early diagnosis of HCV infections which can prevent life and health-threatening sequelae of hepatitis C.

Key words: *hepatitis C, epidemiology, infectious diseases, public health, Poland, 2012*

INTRODUCTION

According to the official WHO statistics, an estimated 2-3% (130-170 million) of population are chronically infected with hepatitis C virus worldwide, of whom 9 million persons live in the European region. The chronic stage of HCV infection constitutes one of the leading cause of cirrhosis and hepatocellular carcinoma. The mortality due to HCV infections worldwide and merely in the European region amounts to 350,000 and 86,000 annually, respectively. The seroprevalence of anti-HCV varies between the European countries, ranging from low seroprevalence observed in Sweden, Germany and Netherlands (0.4%) to 2-3% in Mediterranean countries, in which the highest seroprevalence of anti-HCV is noted in the southern Italy.

It is estimated that the prevalence of anti-HCV in the general population in Poland is approximately 0.95% (more than 320,000 persons), while the number of Poles diagnosed with active infections amounts to approximately 230,000 (0.6%). The alarming is the low public awareness of HCV infection, especially risk factors accompanying hepatitis C. It is assessed that nearly 90% of Poles infected with HCV are not aware of their condition. Furthermore, some of them do not realize that they are a potential source of infection for others.

MATERIAL AND METHODS

The epidemiological situation of HCV infections in Poland was determined based on the analysis of aggregated data published in "Infectious diseases and poisonings in Poland in 2012" (Czarkowski MP et al. "Infectious diseases and poisonings in Poland in 2012" Warsaw, NIPH - NIH and CSI). The data on mortality due to hepatitis C, which was obtained from the Demographic Surveys and Labour Market Department of CSO, were also employed.

The hepatitis C cases are classified according to the criteria applied for the purpose of surveillance for HCV infections 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). In 2012, the cases notified to the surveillance system in Poland were classified and registered based on two definitions: definition of 2005, embracing the symptomatic cases or cases with elevated transaminotransferase levels and anti-HCV response and definition of 2009, covering all laboratory confirmed cases. The correctness of HCV case classification was evaluated in the Department of Epidemiology of NIPH-NIH.

RESULTS AND DISCUSSION

Hepatitis C infections. In 2012, a total of 2,292 HCV infections (incidence 5.95), meeting 2005 definition, were reported, of which 1.4% constituted co-infections with HCV and HBV (33 cases) (Tab. I). The percentage of reported HCV/HBV co-infections is decreasing. Compared to the data from initial years of hepatitis C registration, the number of co-infections with regard to the total number of infections decreased of nearly 80%. Having compared the incidence noted in 2011 (6.07) and median of incidence in 2006-2010 (6.17) with its value for 2012, it dropped of 2% and 3.6%, respectively. The lower number of hepatitis C cases in 2012, meeting 2005 definition, may suggest stabilization of increasing tendency observed since 2009. However, it should be noted that increase, noted in 2009-2001, may be a consequence of improved access to diagnostic testing against HCV infection. Given 2009 definition, a total of 2,265 cases were registered in 2012, which compared to the data from previous year is slightly higher (2,241) (Tab.I).

The HCV infections were reported in all provinces of Poland. However, the significant differences with regard to the incidence are observed between provinces (ranging from 1.28 to 11.21). The highest incidence rates were noted in the following provinces: świętokrzyskie (11.21), lubuskie (10.75) and łódzkie (10.04), while the lowest rate was observed in małopolskie province (1.28) (Tab. I). In comparison to 2011, the changes in incidence were reported in all provinces. The most significant decrease in the incidence was observed in pomorskie (38%), zachodniopomorskie (37%) and podlaskie (33%) provinces, while the highest increase of incidence was noted in małopolskie province (86%). The fluctuations in the number of reported HCV infections in particular provinces should be linked with the changes of detection and reporting rates as well as the accessibility of

Table I. Hepatitis C in Poland in 2006-2012. Number of cases and incidence per 100,000 population, number and percentage of HCV/HBV co-infection by province

Province	Median 2006-2010		2011*		2012*				2012 (2009 def.)	
			total		total		co-inf. HCV/HBV		total	
	N	inc.	N	inc.	N	inc.	N	%	N	inc.
1.Dolnośląskie	293	10.17	253	8.68	228	7.82	3	1.3	255	8.75
2.Kujawsko-pomorskie	153	7.39	150	7.15	174	8.29	0	0.0	193	9.2
3.Lubelskie	137	6.33	99	4.55	121	5.58	0	0.0	130	5.99
4.Lubuskie	29	2.88	152	14.86	110	10.75	1	0.9	140	13.68
5.Łódzkie	260	10.21	213	8.39	254	10.04	7	2.8	286	11.31
6.Małopolskie	32	0.97	23	0.69	43	1.28	0	0.0	33	0.98
7.Mazowieckie	427	8.22	385	7.3	443	8.37	7	1.6	337	6.37
8.Opolskie	55	5.29	66	6.5	70	6.91	0	0.0	80	7.9
9.Podkarpackie	44	2.1	73	3.43	77	3.62	3	3.9	84	3.95
10.Podlaskie	27	2.27	105	8.74	70	5.83	3	4.3	66	5.5
11.Pomorskie	89	4,00	104	4.56	65	2.84	2	3.1	69	3.02
12.Śląskie	273	5.84	204	4.41	196	4.24	4	2.0	143	3.09
13.Świętokrzyskie	159	12.48	107	8.36	143	11.21	2	1.4	90	7.06
14.Warmińsko-mazurskie	32	2.24	48	3.3	38	2.62	0	0.0	43	2.96
15.Wielkopolskie	303	8.93	285	8.26	215	6.22	1	0.5	274	7.92
16.Zachodniopomorskie	52	2.78	71	4.12	45	2.61	0	0.0	42	2.44
POLAND	2353	6.17	2338	6.07	2292	5.95	33	1.4	2265	5.88

* meeting 2005 definition

Tabela II. Hepatitis C in Poland in 2012. 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	3	0.28	0.2	6	0.6	0.6	4	0.33	0.2	5	0.57	0.8	9	0.44	0.4
5-9	2	0.21	0.2	2	0.22	0.2	4	0.39	0.2	0	0,00	0.0	4	0.22	0.2
10-14	0	0,00	0.0	2	0.22	0.2	2	0.2	0.1	0	-	0.0	2	0.11	0.1
15-19	36	3.11	2.9	21	1.89	2.0	36	2.97	2.1	21	1.99	3.5	57	2.51	2.5
20-24	74	5.31	6.0	65	4.85	6.1	96	6.1	5.7	43	3.7	7.2	139	5.08	6.1
25-29	128	7.89	10.4	95	6.03	9.0	164	8.33	9.7	59	4.8	9.8	223	6.97	9.7
30-34	156	9.73	12.7	73	4.68	6.9	174	8.73	10.3	55	4.71	9.2	229	7.24	10.0
35-39	124	8.43	10.1	60	4.19	5.7	138	7.74	8.2	46	4.1	7.7	184	6.34	8.0
40-44	106	8.61	8.6	53	4.38	5.0	112	7.78	6.6	47	4.69	7.8	159	6.51	6.9
45-49	149	12.45	12.1	70	5.87	6.6	159	11.3	9.4	60	6.1	10.0	219	9.17	9.6
50-54	121	8.84	9.8	135	9.54	12.7	181	10.54	10.7	75	7.03	12.5	256	9.19	11.2
55-59	128	9.12	10.4	163	10.71	15.4	225	11.75	13.3	66	6.53	11.0	291	9.94	12.7
60-64	74	6.36	6.0	112	8.29	10.6	143	8.52	8.4	43	5.14	7.2	186	7.4	8.1
65-74	95	7.88	7.7	123	7.51	11.6	154	8.27	9.1	64	6.52	10.7	218	7.67	9.5
>75	35	4.11	2.8	81	4.74	7.6	101	6.42	6.0	15	1.52	2.5	116	4.53	5.1
Total	1231	6.6	100.0	1061	5.34	100.0	1693	7.25	100.0	599	3.95	100.0	2292	5.95	100.0

diagnostic testing against HCV (i.a. seasonal screening campaigns, epidemiological studies, educational campaigns) rather than with actual incidence fluctuation.

The incidence observed in rural areas was nearly two times lower than incidence in urban areas (3.95 and 7.25, respectively) (Tab. II) and the incidence in urban areas was increasing with the number of inhabitants (5.21 in cities<20,000 inhabitants and 8.67 in cities ≥ 100,000 inhabitants) (Tab. III). Compared to 2011, the incidence in urban areas decreased of 3%, while in rural areas it increased of 2%. The significantly higher incidence in urban than rural areas is observed from the beginning of hepatitis C cases registration.

In 2012, the incidence for males (6.60) was higher than for females (5.34) of 24%. This tendency is observed since 1997. The interesting fact is also that the differences in incidence rates between males and females are decreasing, ranging from 1999, when the difference amounted to 40% (M: 6.0; F: 4.3) and 2012, when the male predominance was only 24% (M: 6.6; F: 5.33). The higher male incidence was noted in the majority of age groups, excluding 0-14, 50-64 and > 75 years (Tab. II). The higher incidence for older females (2005 definition) may be associated with the natural history of HCV infection, especially with more rapid progression of HCV infection in males. The highest incidence for males and females was reported in the following age groups 45-49 (12.45) and 55 – 59 (15.4), respectively (Fig. I).

Hospitalization and mortality due to hepatitis C. In 2012, a total of 1,375 HCV cases, meeting 2005 definition, were hospitalized in Poland, which constitutes 60% of all notified infections. The percentage of hospitalization is comparable with the one observed

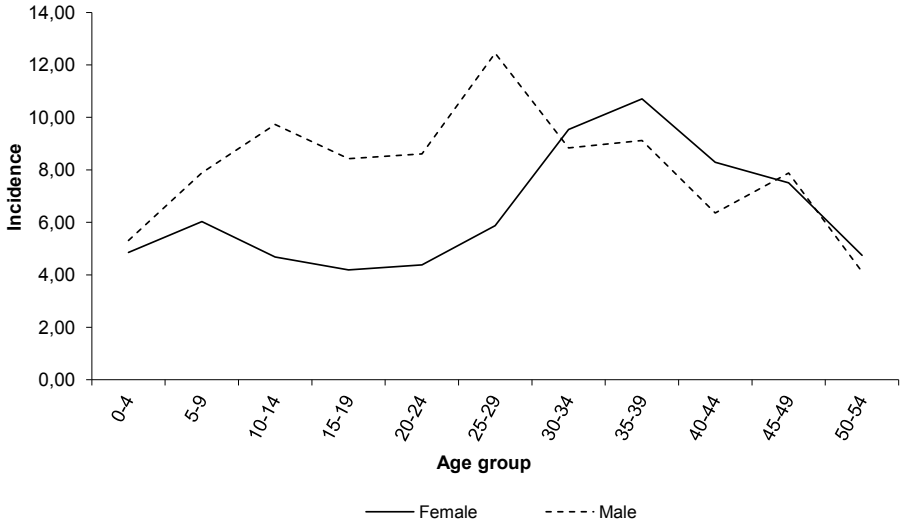

Fig.1. Hepatitis C in Poland in 2012. Incidence per 100,000 population by age group and gender

in 2011 and preceding years. However, there are disparities in hospitalization rates between provinces. In four provinces: świętokrzyskie (35.7%), mazowieckie (39.7%), wielkopolskie (44.2%) and lubelskie (44.6%), the percentage of hospitalization did not exceed 50%. The highest number of HCV cases was hospitalized in the following provinces: łódzkie (80.3%), opolskie (82.9%), podlaskie (88.6%) and podkarpackie (98.7%). The percentage of cases, meeting 2009 definition, was comparable and amounted to 58.9%, which is slightly lower compared to the data from 2011 (61.1%).

From the data of the Demographic Surveys and Labour Market Department of CSO transpires that the number of fatal cases due to hepatitis C in 2012 was 217, of which deaths due to the chronic stage of infection predominated (96%) (Fig.II). Compared to the data of 2011, it is an increase of 14%. Having analyzed the number of deaths with regard to sex, it can be observed that the number of deaths is slightly higher in males than females (M-111; F-106). The highest mortality was noted in the age groups 70-79 (28%) and 50-59 (26%). It should be noted that the mortality has never been so high since the beginning of HCV infection registration.

Tabela III. Hepatitis C in Poland in 2011-2012. Number of cases and incidence per 100,000 population by location (urban/rural) with number of the population

Residence	Number of cases/incidence	2011	2012
Urban area	N	1755	1693
	inc.	7.5	7.25
< 20,000.	N.	301	259
	inc.	6.02	5.21
20 - 49,000	N.	298	252
	inc.	7.02	5.91
50 - 99,000	N.	245	238
	inc.	7.53	7.33
>=100,000	N.	911	944
	inc.	8.36	8.67
Rural area	N	583	599
	inc.	3.86	3.95
Total	N	2338	2292
	inc.	6.07	5.95

SUMMARY

Compared to the data from 2011, the epidemiological situation of hepatitis C in 2012 has not changed significantly. The incidence was slightly lower than the one noted in 2011, which may suggest the interruption of increasing tendency noted since 2009. Beginning from 1997, the dynamics of hepatitis C incidence was relatively stable (ca 5.0 per 100,000) with the slow increasing tendency. The highest incidence of HCV infections was registered in 2005 – 2007, when the incidence amounted to 7.85; 7.40 and 7.22, respectively. However, it should be noted that due to low sensitivity of epidemiological surveillance of hepatitis C and temporality of public campaigns accompanied by cost free diagnostic testing against HCV, the data should be interpreted cautiously. According to the estimations, the percentage of diagnosed HCV cases in Poland amounts to merely 10 - 15%. Thus, every effort made to improve the access to diagnostic testing may significantly increase the observed incidence. Similarly, differences in detection and reporting of HCV infections between rural and urban areas result, most probably, from limited access to diagnostic testing in the former. The results of cross-sectional study suggest comparable seroprevalence in urban and rural areas. Thus, it is reasonable to extend the list of tests ordered by general practitioner (not only in rural areas) and to develop prophylactic programmes targeting this population.

The alarming is the rapid increase of deaths due to hepatic pathologies resulting from chronic stage of HCV infection. Most probably, it suggests delayed diagnosis of HCV infections. Furthermore, increasing social burden of hepatitis C and its consequences should induce to intensify the preventive actions.

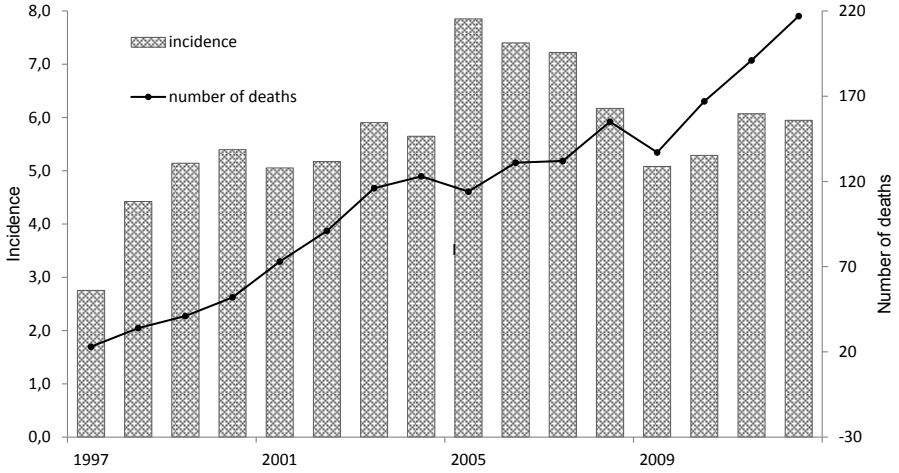

Fig.2. Hepatitis C in Poland in 1997-2012. Incidence per 100,000 population and number of deaths

In Poland, no long-term strategy to prevent HCV infections has been implemented. There is also a lack of coordinated, conducted on a central level activities aimed at raising public awareness on hepatitis C and risk factors accompanying the disease. Implementation of the Project "Prevention of HCV infections", supported by a grant from Switzerland through the Swiss Contribution to the enlarged European Union and the Ministry of Health, conducted in 2012-2016 (www.hcv.pzh.gov.pl) was a crucial step to develop fundamentals for the national strategy of hepatitis C prevention.

Having considered an estimated morbidity of HCV infections, low sensitivity of epidemiological surveillance and low detection and treatment rates of HCV infections and its significant economic and social costs, it is necessary and reasonable to improve the access to diagnostic testing against HCV infections, enhance the epidemiological surveillance and conduct epidemiological studies aimed at determining the prevalence of hepatitis C in both risk groups and general population.

CONCLUSIONS

1. Epidemiological studies which are well-designed in terms of methodology are fundamental for proper analysis of epidemiological situation of HCV infections in Poland and risk factors associated with this disease.
2. The high incidence of HCV infections in males requires performing educational actions targeting this group. The significantly lower incidence of hepatitis C in rural compared to urban areas justifies the necessity to improve the access to diagnostic testing for the inhabitants of the former. Consequently, it would be feasible to determine the actual epidemiological situation of hepatitis C in rural areas.

Received: 1.04. 2014
Accepted for publication: 5.04. 2014

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ERRATUM

Incorrect figure (Fig.1) was inserted in the article: N. Parda, Ł. Henszel, M. Stępień: Hepatitis C in Poland in 2012, p. 267 of the Epidemiological Review No 2/2014.
Below is presented the correct figure 1 (Fig. 1), to which the text in the right column is referred to, line 10, p. 267. The correct text is as follows: The highest incidence for males and females was reported in the following age groups 45-49 (12.45) and 55-59 (10.71), respectively (Fig. 1).

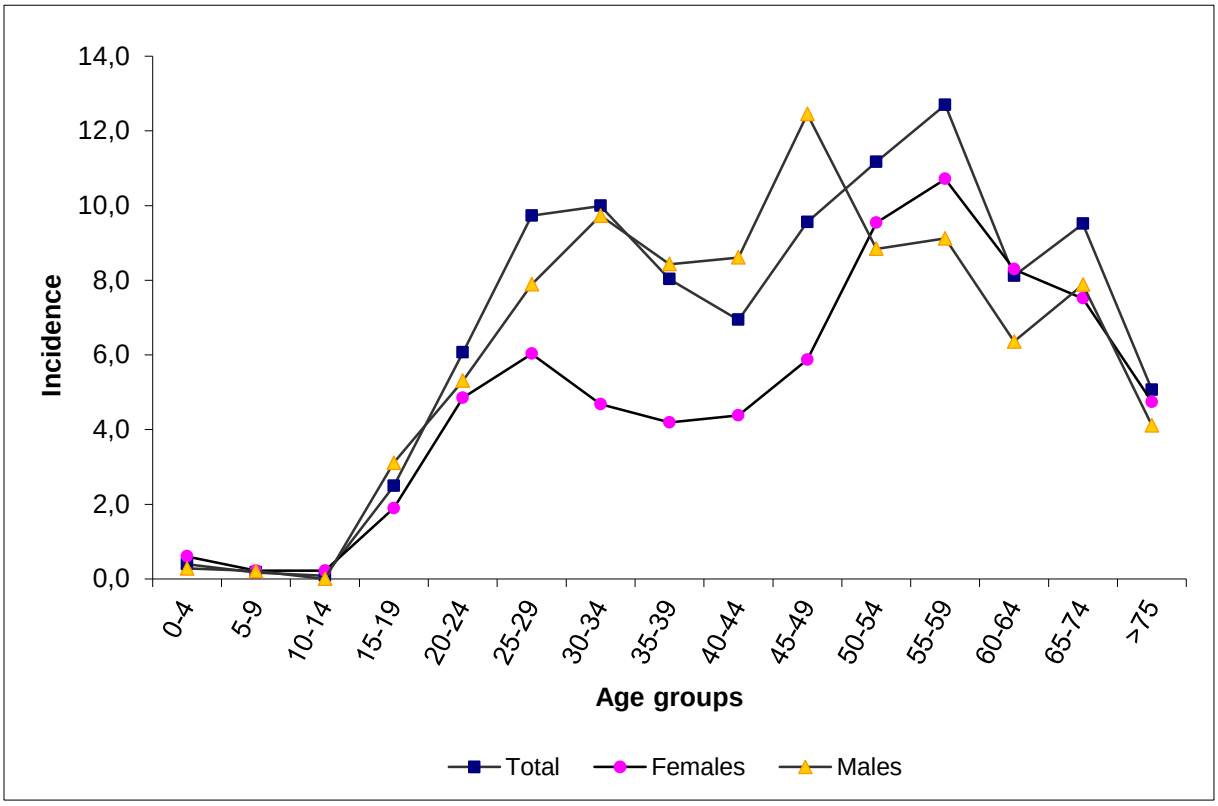

Fig.1. Hepatitis C in Poland in 2012. Incidence per 100,000 population by age group and gender.