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RABIES IN POLAND IN 2011

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ABSTRACT

AIM. To assess epidemiological situation of rabies in Poland in 2011.

MATERIAL AND METHODS. The assessment was based on the results of the data analysis from questionnaires (People vaccinated against rabies post-exposure surveys in Poland and people vaccinated against rabies after exposure in other countries) submitted by the Sanitary-Epidemiological Stations and data from the annual newsletter "Infectious diseases and poisonings in Poland in 2011" (Czarkowski MP et al., Warsaw, NIZP-PZH and GIS) and epizootic data provided by the General Veterinary Inspectorate.

RESULTS. In 2011, in Poland, 160 cases of rabies (in 2010 - 152 cases) were reported. Animal cases occurred primarily in the Malopolska province, where an increase in animal rabies cases has been observed since September 2010 and in Podkarpackie province. A single case of fox rabies was reported in Silesia, where there was no disease for many years. Rabies among terrestrial animals also occurred in the provinces of Lubelskie, Warmińsko-Mazurskie and Podlaskie. In other regions of the country there were recorded only isolated cases of bat rabies. In 2011, number of people vaccinated against rabies was 7 543 (in 2010 - 7 243), of which 300 (4%) due to exposure to the animals that were confirmed to have rabies. Among those vaccinated because of contact with the rabid animal, 68 people (over 22%) were vaccinated after contact with fox. As in previous years, people were mainly vaccinated after exposure to dogs and cats in which rabies could not be ruled out - 5 874 persons (78%).

CONCLUSIONS. The number of registered animals with confirmed rabies remains at the same level and the disease epizootic situation is good. This is a consequence of the implementation of the oral vaccination of wild animals introduced in the country in 1993. Epizootic situation in the country has a small influence on the number of people vaccinated against rabies who have come into contact with the animal potentially infected with the rabies. Serum is given in a few cases, including a few people at contact with rabid animals or deeply wounded by animals in which rabies cannot be excluded.

Keywords: *rabies, epidemiology, Poland, 2011*

In Poland, there is obligatory registration of cases of human rabies, as defined in the Act on infectious diseases and infections: 5 th Dec. 2008. There are also recorded post exposure human vaccination against rabies done in the country. The purpose of the study was to assess the epidemiological situation of rabies in Poland in 2011 compared with the previous years.

MATERIALS AND METHODS

The analysis of the epidemiological situation of rabies in Poland in 2011, was based on information

from the questionnaires sent to the Department of Epidemiology, NIPH-NIH by the Sanitary-Epidemiological Stations, including: 7 543 reports of people vaccinated against rabies after exposure in Poland and 117 questionnaires people vaccinated against rabies after exposure in other countries, data from annual bulletin "Infectious diseases and poisonings in Poland in 2011" (Czarkowski MP et al., Warsaw, NIPH-NIH and GIS) and epizootic data provided by the General RESULTS

In 2011, in Poland there was not reported any case of human rabies. The last case of human rabies was notified in the country in 2002.

ANIMAL RABIES

In 2011 there were registered 160 cases of animals with rabies. From 2001 to 2010, there was a steady decline in the number of rabies. Year 2011 is the second year in which there was an increase in the number of cases of animal rabies. Those cases occurred primarily in the province of Malopolskie and Podkarpackie, 60 and 63 respectively. In the province of Malopolskie number of reported cases was about half of the number of cases reported in 2010 (118 to 60 cases). However, in the Podkarpackie region number of cases has markedly increased. In 2010, it was only 13. One case of fox rabies was also recorded in Silesia, where rabies has not occurred for many years. In 2011, cases of rabies in terrestrial animals were registered in six provinces. Rabies was found both in wild and domestic ones. Rabies prevailed in foxes - 103 cases (over 64%), including in Podkarpackie - 46, in the Malopolskie - 38, in Lubelskie - 12 in the Warminsko-Mazurskie - 4, in Podlaskie - 2 and in Slaskie - 1. As in the previous years, there were also recorded cases of bat rabies. A total of four rabid bats were notified, in the Warminsko-Mazurskie - 2, and in Mazowieckie and Pomorskie one in each.

Table I. Number of rabid animals (AB) and number of vaccinated persons exposed by rabid (AB) or rabies suspected (CD) animals in Poland in 2011

Animal	No of rabid animals	%	No of people vaccinated against rabies			Total
			AB	C	D	
dog	9	6	63	4614	531	5208
cat	10	7	51	1260	119	1430
livestock	15	10	58	37	1	96
fox	103	68	63	75	—	138
badger	4	3	4	1	—	5
raccoon dog	2	1	11	3	—	14
marten	9	6	33	42	—	75
polecat	—	—	—	6	—	6
weasel	—	—	—	5	—	5
bat	4	3	11	102	—	113
rat	—	—	—	199	—	199
mouse	—	—	—	46	—	46
squirrel	—	—	—	48	—	48
wild hamster	—	—	—	1	—	1
wild ruminant	3	2	5	26	—	31
hedgehog	—	—	—	19	—	19
mole	—	—	—	16	—	16
hare	1	—	1	3	—	4
wild boar	—	—	—	23	—	23
other	—	—	—	41	1	42
not identified	—	—	—	24	—	24
Total	160	100	300	6591	652	7543

Data sources: Monthly Reports on Animal Rabies in Poland (General Veterinary Inspectorate), Questionnaires - Person vaccinated against rabies

The number of sick animals and the number of people vaccinated against rabies because of contact with animals category AB (rabid animal, rabies laboratory-confirmed or clinically diagnosed), C (rabies in animals is excluded) and D (pet healthy at the time of exposure) are given in Tables I and II.

Table II. Number of persons vaccinated against rabies in Poland in 2011, exposed to rabid (AB) or rabies suspected (CD) animals

Province	No of people vaccinated against rabies			Total	Registry Mz-56
	AB	C	D		
Dolnośląskie	—	209	10	219	220
Kujawsko-Pomorskie	—	358	22	380	373
Lubelskie	—	245	36	281	283
Lubuskie	—	109	4	113	111
Łódzkie	—	641	45	686	716
Małopolskie	113	925	85	1123	1125
Mazowieckie	1	903	58	962	996
Opolskie	—	105	3	108	114
Podkarpackie	143	598	69	810	822
Podlaskie	30	193	23	246	247
Pomorskie	—	509	33	542	560
Śląskie	—	426	12	438	635
Świętokrzyskie	—	176	10	186	199
Warmińsko- Mazurskie	13	439	150	602	591
Wielkopolskie	—	445	61	506	507
Zachodnio-Pomorskie	—	310	31	341	343
Polska	300	6591	652	7543	7842

Data sources: Questionnaires - Person vaccinated against rabies, Infectious diseases and poisonings in Poland. NIZP-PZH, MZiOS / GIS. Warsaw, 2011

REGISTRATION OF PERSONS EXPOSED TO RABIES

In 2011, analysis was done on 7543 reporting forms which represent 96% of the official reports. Detailed information on the vaccination of people against rabies in different regions are shown in Table II.

In 65 outbreaks of animal rabies 300 people were vaccinated. In comparison with the year 2010 this figure was comparable but significantly higher than in the previous years (in 2009 was 10, in 2008 - 60 people, in 2007 - 91 and 2006 - 99). However, it was much smaller than in 2001, when amounted to 3080 people.

Most people are vaccinated because of exposure to the animals in which rabies cannot be excluded. In 2011, the figure was over 87% and was close to values obtained in the last four years (Table II.).

In Poland in 2011, men were slightly more frequently vaccinated than women while in the age group above 18 more vaccinations occurred in women (Table III). As in the previous years maximum number of vaccinations fell on the second and third quarters of the

year (Table IV). Number of people vaccinated in rural areas was more than 1.5 times higher than in the cities. Both in the countryside or in the city, vaccinations were most often done due to exposure to the animals in which rabies is not excluded (Category C) - Table V. Veterinary Inspectorate.

Table III. Human antirabies vaccination in Poland in 2011 by age and gender

Gender	Age	0-6	7-18	>18	Total
Men		236	849	2749	3834
Women		201	732	2776	3709
Total		437	1581	5525	7543

Table IV. Seasonal distribution of human antirabies vaccination in Poland in 2011, by quarter

Quarter	No of people vaccinated against rabies			
	AB	C	D	Total
I	93	1288	114	1495
II	45	2096	244	2385
III	80	1972	182	2234
IV	82	1235	112	1429
Total	300	6591	652	7543

Table V. Human antirabies vaccination in Poland in 2011 according to urban/rural distribution of cases

	No of people vaccinated against rabies			
	AB	C	D	total
Town	118	4163	367	4648
Countryside	182	2428	285	2895
Total	300	6591	652	7543

SOURCES OF HUMAN EXPOSURE TO RABIES

Data on the source of human exposure to rabies virus are given in Tables I, VI and VII. In the outbreaks of animal rabies in Poland in 2011, to one sick animal it was exposed by average more than four persons. Altogether after exposure to rabid animals 300 people were vaccinated. Vaccinations were performed after contacts with 65 animals, including 23 foxes, 9 cats, 10 dogs and two bats - Table VI. However, as in previous years, the most common cause of people vaccination were contacts with domestic animals such as cats and dogs suspected of being infected - 78% (Table VII).

In Poland in 2011, 117 people were vaccinated due to the exposure which occurred outside the country: in other European countries (such as Ukraine and Russia) or in non-European countries such as Thailand, Indonesia and Vietnam. Exposure was caused mainly by dogs and cats - in 80 patients (68%). Most people have been exposed during the holiday season i.e. in the third quarter of the year- more than 43%.

EFFICACY AND SAFETY OF HUMAN RABIES VACCINATION

Vaccine effectiveness depends on many factors including, in addition to the use of highly immunogenic vaccines or serum, the severity of the injuries inflicted by infected animals, timing of administration of the vaccine after exposure and compliance with vaccination scheme recommended by the manufacturer. In the outbreaks were vaccinated 300 people, including 8 with damaged skin (bitten or scratch) and in 56 contact with saliva (Table VI and Table VIII).

Table VI. Human exposure in animal rabies focuses (AB) in Poland in 2011. Number of rabid domestic and wild animals (AB)

Province	No of rabies animal out-breaks	No of rabid animal		No of people vaccinated against rabies		
		wild	do-mestic	with skin injures	witout skin injures	Total
Mazowieckie	1	1	0	1	0	1
Podkarpackie	31	23	8	5	138	143
Podlaskie	5	0	5	3	27	30
Warmińsko-Mazurskie	2	1	1	0	13	13
Polska	65	37	28	18	282	300

Table VII. Human antirabies vaccination caused by rabies suspected animals (C)

No of people vaccinated against rabies*:		No of people vaccinated against rabies:			
domestic animals	wild animals	animal escaped	animal: dead not tested	test results not taken into account **	no information about animal
5823	624	6158	313	10	0

* in 24 caes the animal was not identified

** in 110 cases rabies of animal was excluded and vaccination was stopped

In 2011, it was found the following cases of misconduct in vaccination (Table IX): serum was given only to seven people who have had contact with the animal with rabies and in whom the skin has been damaged. It was not given to and any person who was soiled with saliva. In addition, sera were given only to 84 people at risk from the animals suspected of being infected. Vaccination at 7 days or later since the time of exposure was started in 1303 people. The main departure from the principles of vaccination was the lack booster dose or continuation of vaccination despite the exclusion of rabies in an animal of contact.

In 2011, there was no one unsuccessful human vaccination against rabies. 19 adverse reactions were

Table VIII. Human exposure to rabies infection in Poland in 2011 by rabid (AB) and rabies suspected (CD) domestic and wild animals. Kind of injures.

Kind of exposure	No of people exposed by									
	dogs and cats			livestocks			wild animals			not identified animals
	A	C	D	A	C	D	AB	C	D	C
no contact, undirect contact, touching	89	28	8	28	3	—	109	57	—	—
licks	10	55	8	30	—	—	16	13	—	2
scratches	5	169	16	—	—	—	—	25	—	—
bite wound of palms and head not breaks the skin	6	2133	224	—	24	1	3	454	—	12
bite wound of palms and head breaks the skin	—	332	99	—	5	—	—	7	—	—
bite wound of torso, limbs, and arms not breaks the skin	4	2957	253	—	5	—	—	89	—	10
bite wound of torso, limbs, and arms breaks the skin	—	200	42	—	—	—	—	11	—	—
Total	114	5874	58	58	37	1	128	656	0	24

Table IX. Prophylactic procedures in person exposed to rabies infection in Poland in 2011

Information on prophylactic procedure		No of people vaccinated against rabies		
		AB	C	D
Total number of vaccinated people		300	6591	652
sera was given	up to 72 h after exposure	4	69	1
	> 72 h after exposure	5	15	0
vaccinated	up to 72 h after exposure	77	4518	541
	4-6 days after exposure	92	937	64
	7-14 days after exposure	91	865	39
	> 14 days after exposure	33	267	8
vaccine administered according to instruction		288	6061	605

reported after vaccination against rabies: 8 local and 11 systemic.

SUMMARY AND CONCLUSIONS

- 1 Although the year 2011 is the second year in which observed a slight increase in the recorded number of animal rabies cases, it can be concluded that the epizootic situation in Poland of this disease is good and not deteriorated.

- 2 Stable epizootic situation of rabies in the country is a result of the program for oral vaccination of wild animals, which was introduced in the country in 1993
- 3 A small number of rabid animals registered in the country in recent years, does not significantly affect the number of vaccination against rabies in humans who come into contact with animals which potentially could be the source of rabies. For many years a total number of vaccinated people remains at the level of 6-7 thousand.
- 4 Special attention should be paid to the administration of serum to people exposed or deeply wounded by rabid animals or those in which rabies cannot be excluded.

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