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RABIES IN POLAND IN 2012

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ABSTRACT

OBJECTIVE. Evaluation of the epidemiological situation of rabies in Poland in 2012.

MATERIAL AND METHODS. Evaluation was based on the analysis of data from questionnaires sent by the Epidemiological-Sanitary Stations. The data are from questionnaires of persons who were administered vaccine against rabies following exposure in Poland and beyond its territory and data from annual bulletin “Infectious diseases and poisonings in Poland in 2012” (Czarkowski MP et al., Warsaw, NIH and CSI) and epizootic data provided by the General Veterinary Inspectorate.

RESULTS. In 2012, a total of 257 animal rabies cases were registered in Poland, i.e. nearly 60% more compared to 2011. More than 83% of these cases were reported in Podkarpackie province. Compared to 2011, more than 3.5 increase was noted there. One rabid dog was reported in Śląskie province where one rabies infection in fox was noted there a year ago. Rabies infections in terrestrial animals were also reported in the following provinces: Małopolskie, Lubelskie, Warmińsko-mazurskie and Podlaskie. Single rabies infections in bats were registered in other regions of Poland.

In 2012, a total of 7,753 persons were vaccinated against rabies, including 315, i.e. more than 4% due to the exposure to animals infected with rabies virus. Of persons vaccinated due to contact with a rabid animal, nearly 40% and more than 44% were vaccinated following contact with rabid fox and domestic animal, respectively. As with the previous years, humans were vaccinated mostly due to contact with dogs and cats in which rabies could not be excluded – 5,974 persons (77%).

CONCLUSIONS. A reason for concern is an increase in the number of animal rabies cases reported in 2012, especially in Podkarpackie province. Epizootic situation in Poland affects slightly the number of persons vaccinated against rabies who had contact with an animal which potentially is a source of rabies virus. Since many years, this number remains stable, amounting to 7-8,000 annually.

Keywords: *rabies, epidemiology, Poland, 2012*

In Poland, pursuant to the provisions in force, human rabies cases as well as post-exposure vaccinations against rabies are registered.

This paper aims at evaluating the epidemiological situation of rabies in Poland in 2012 compared to the previous years.

MATERIAL AND METHODS

Epidemiological situation of rabies in Poland in 2012 was analyzed on a basis of data from questionnaires sent by the Provincial Epidemiological and Sanitary Stations to the Department of Epidemiology of

NIPH-NIH, including 7,753 and 106 questionnaires of persons vaccinated against rabies following exposure in Poland and other countries, respectively and data from annual bulletin “Infectious diseases and poisonings in Poland in 2012” (Czarkowski MP et al., Warsaw, NIH and CSI) and epizootic data provided by the General Veterinary Inspectorate.

RESULTS

In 2012, no human cases of rabies were reported in Poland. Last human case was notified in 2002.

RABIES IN ANIMALS

In 2001-2010, a stable decrease in the number of animal rabies cases was observed. In 2012, a total of 257 rabid animals were registered in Poland. It is an increase by 60% compared to the previous two years. Infections occurred mainly in Podkarpackie province – 213, which accounts for more than 83% of all reported animal rabies cases. In Małopolskie province, 24 infections were registered, which refers to a 2.5 decrease in the number of cases compared to 2011 (60 cases). One rabies infection in dog occurred in Śląskie province, where one fox was diagnosed with rabies a year ago. Since many years, rabies have not been noted there. In 2012, rabies infections in terrestrial animals were reported in 6 provinces. Both wild and domestic animals were infected. Predominantly, rabies occurred in foxes - 200 cases (nearly 78%), of which 170 (85%), 21, 4, 4 and 1 were noted in Podkarpackie, Małopolskie, Lubelskie, Podlaskie and Warmińsko-mazurskie provinces, respectively.

As with the previous years, single rabies infections in bats were registered. A total of 3 rabid bats were notified, i.e. one case in each of the following provinces: Warmińsko-mazurskie, Pomorskie and Mazowieckie provinces.

Table I. Number of rabid animals (AB) and number of vaccinated persons exposed by rabid (AB) or rabies suspected (CD) animals in Poland in 2012

Animal	No of rabid animals	%	No of people vaccinated against rabies			Total
			AB	C	D	
dog	13	9	80	4623	516	5219
cat	14	9	60	1351	117	1528
livestock	11	7	39	42	2	83
fox	200	132	125	107	—	232
badger	2	1	0	12	—	12
raccoon dog	2	1	2	2	—	4
marten	10	7	7	51	—	58
polecats	1	1	—	10	—	10
weasel	—	—	—	17	—	17
bat	3	2	2	126	—	128
rat	—	—	—	201	—	201
mouse	—	—	—	82	—	82
squirrel	—	—	—	51	1	52
wild hamster	—	—	—	1	—	1
wild ruminant	1	1	—	21	—	21
hedgehog	—	—	—	19	—	19
mole	—	—	—	10	—	10
hare	—	—	—	6	—	6
wild boar	—	—	—	30	—	30
other	—	—	—	22	—	22
not identified	—	—	—	18	—	18
Total	257	100	315	6802	636	7753

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

Tables I and II present the number of rabid animals and persons vaccinated against rabies due to contact with animals of categories AB (rabid animal, rabies confirmed laboratory or clinically), C (rabies has not been excluded in animal) and D (rabies-free animal at the moment of exposure).

REGISTRATION OF PERSONS EXPOSED TO RABIES

In 2012, 7,753 registration forms of persons vaccinated against rabies were obtained, i.e. 4% less compared to the number provided in Mz-56. Table II presents detailed data on vaccination against rabies in humans in particular provinces.

Table II. Number of persons vaccinated against rabies in Poland in 2012, exposed to rabid (AB) or rabies suspected (CD) animals

Province	No of people vaccinated against rabies			Total	Registry Mz-56
	AB	C	D		
Dolnośląskie	—	212	11	223	227
Kujawsko-Pomorskie	—	481	17	498	483
Lubelskie	1	281	38	320	316
Lubuskie	—	110	5	115	110
Łódzkie	—	627	51	678	693
Małopolskie	30	949	93	1072	1050
Mazowieckie	—	878	62	940	994
Opolskie	—	109	4	113	116
Podkarpackie	267	763	46	1076	1071
Podlaskie	13	199	15	227	227
Pomorskie	2	436	24	462	499
Śląskie	1	460	18	479	662
Świętokrzyskie	—	178	5	183	171
Warmińsko- Mazurskie	1	323	152	476	479
Wielkopolskie	—	443	78	521	532
Zachodnio-Pomorskie	—	353	17	370	369
Polska	315	6802	636	7753	7999

Data sources: Questionnaires - Person vaccinated against rabies, Infectious diseases and poisonings in Poland. NIZP-PZH, MZiOS / GIS. Warsaw, 2012

Of 88 rabies outbreaks, a total of 315 persons were vaccinated. Compared to 2011 and 2010, this number was similar and significantly higher than in the previous years (10, 60, 91 and 99 in 2009, 2008, 2007 and 2006, respectively). However, it was still noticeably lower than in 2001, when 3,080 persons were vaccinated.

In majority of cases, persons are vaccinated due to contact with animals in which rabies could not be excluded. In 2012, vaccination in this group accounted for 88% of all vaccinations. This percentage was comparable to the average observed in the previous four years. In this group, the majority of persons were vaccinated

following the exposure to dogs and cats in which rabies was not excluded – 5,974 persons (77%) (Tab. II).

In Poland in 2012, males were slightly more frequently vaccinated against rabies compared to females (Tab. III). As with the previous years, the highest number of vaccinated persons was noted in the 2nd and 3rd quarter – more than 62% of persons vaccinated in the year (Tab. IV). The number of persons living in urban areas was 1.5 higher compared to those living in rural areas. In the majority of cases, persons from urban and rural areas were vaccinated due to the exposure to animals in which rabies was not excluded (category C) - Table V.

Table III. Human antirabies vaccination in Poland in 2012 by age and gender

Gender	Age	0-6	7-18	>18	Total
Men		292	862	2842	3996
Women		246	795	2716	3757
Total		538	1657	5558	7753

Table IV. Seasonal distribution of human antirabies vaccination in Poland in 2012, by quarter

Quarter	No of people vaccinated against rabies			
	AB	C	D	Total
I	46	1262	139	1447
II	65	2116	236	2417
III	59	2194	179	2432
IV	145	1230	82	1457
Total	315	6802	636	7753

Table V. Human antirabies vaccination in Poland in 2012 according to urban/rural distribution of cases

	No of people vaccinated against rabies			
	AB	C	D	razem
Town	40	4216	327	4583
Countryside	275	2586	309	3170
Total	315	6802	636	7753

SOURCES OF HUMANS EXPOSURE TO RABIES

Tables I, VI and VII provide the information on the sources of humans exposure to rabies virus. In 2012 in Poland, one rabid animal in rabies outbreaks exposed more than 3.5 persons on average. Following the exposure to rabid animal, 315 persons were vaccinated. Persons were vaccinated due to contact with 88 rabid animals – Table VI. Vaccinations due to contact with animals in which rabies was confirmed were performed > 7 times more often in persons living in rural compared to urban areas.

In 2012, a total of 106 persons were vaccinated who were exposed to rabies abroad. Exposure was noted in European (e.g. Ukraine, Romania, Greece and Russia) and non-European countries such as Thailand or Indone-

sia. Exposure was mainly attributed to dogs and cats – in 72 persons (nearly 68%) and predominantly observed in summer time, i.e. the 3rd quarter of a year – nearly 39%.

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 outbreaks	No of rabid animal		No of people vaccinated against rabies		
		wild	domestic	with skin injuries	without skin injuries	Total
Lubelskie	1	1	0	0	1	1
Małopolskie	9	6	3	1	29	30
Podkarpackie	70	48	22	12	255	267
Podlaskie	5	0	5	4	9	13
Pomorskie	1	1	0	2	0	2
Śląskie	1	0	1	1	0	1
Warmińsko- Mazurskie	1	1	0	0	1	1
Polska	88	57	31	20	295	315

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
6016	768	6376	315	12	0

* in 18 cases the animal was not identified

** in 99 cases rabies of animal was excluded and vaccination was stopped

EFFICACY AND SAFETY OF VACCINATION AGAINST RABIES IN HUMANS

Efficacy of vaccination against rabies is influenced by the following factors: accessibility of highly immunogenic vaccine and serum, severity of injuries caused by rabid animals, time between exposure and vaccination and adherence to vaccination schedule recommended by producer. Due to contact with animal diagnosed with rabies, a total of 315 persons were vaccinated, including 20 (ca 6%) who had skin damages (bites or scratches) and 51 persons exposed to saliva (Tab. VI and VIII).

In 2012, the following negligence in vaccination were determined (Tab. IX): not all persons who had contact with rabid animal and suffered from skin damage were administered serum. Serum was not provided for persons who were exposed to saliva of animal with confirmed rabies. Furthermore, serum was given exclusively to 86 persons who were exposed to animal

Table VIII. Human exposure to rabies infection in Poland in 2012 by rabid (AB) and rabies suspected (CD) domestic and wild animals. Kind of injures.

Kind of exposure	No of people exposed by									not identified animals C
	dogs and cats			livestocks			wild animals			
	AB	C	D	AB	C	D	AB	C	D	
no contact, undirect contact, touching	86	36	2	28	11	—	120	76	—	—
licks	38	47	4	11	9	—	13	27	—	—
scratches	6	200	14	—	1	—	2	44	—	—
bite wound of palms and head not breaks the skin	8	2327	264	—	14	1	—	493	—	2
bite wound of palms and head breaks the skin	—	300	82	—	2	—	—	5	—	12
bite wound of upper body, limbs, and arms not breaks the skin	2	2940	248	—	4	1	2	111	1	—
bite wound of upper body, limbs, and arms breaks the skin	—	124	19	—	1	—	—	12	—	4
Total	140	5974	633	39	42	2	137	768	1	18

Table IX. Prophylactic procedures in person exposed to rabies infection in Poland in 2012

Information on prophylactic procedure		No of people vaccinated against rabies		
		AB	C	D
Total number of vaccinated people		315	6802	636
sera was administered	up to 72 h after exposure	2	73	0
	> 72 h after exposure	3	15	0
vaccine was administered	up to 72 h after exposure	87	4632	549
	4-6 days after exposure	103	994	44
	7-14 days after exposure	115	910	38
	> 14 days after exposure	10	265	5
	no information	0	1	0
vaccine administered according to instruction		309	6179	610

suspected of rabies. Vaccination at day 7 or later following exposure was initiated in case of 1,300 persons, including 125 persons who were exposed to animal with confirmed rabies.

In 2012, a total of 16 adverse events following immunization were notified, including 10 and 6 of local and systemic nature, respectively.

SUMMARY AND CONCLUSIONS

1. In 2012, a significant increase in the number of animal rabies cases was observed, of which the majority was notified in Podkarpackie province. Therefore, it may be concluded that epizootic situation has deteriorated, especially in this province.
2. However, a low number of rabid animals registered in Poland does not significantly affect the reduction of vaccination against rabies in humans in recent years. The number of vaccinated persons remains stable, amounting to 7-8,000 annually.

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