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MALARIA IN POLAND IN 2012

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ABSTRACT

OBJECTIVE. To describe the epidemiological situation of imported malaria in Poland in 2012 as compared with previous years.
MATERIAL AND METHODS. Evaluation of malaria epidemiological situation in Poland in 2012, based on the results of the analysis of individual reports sent to the NIPH-NIH by the Sanitary-Epidemiological Stations and aggregate data published in the annual bulletins "Infectious Diseases and Poisonings in Poland." Cases were registered according to the case definition approved in the EU countries.
RESULTS. In 2012, a total of 21 malaria cases were registered in Poland, including one fatal case. All cases were imported from malaria-endemic countries: 52% from Africa and remaining cases from Asia. Overall, compared to 2011, 7 more cases were reported. Given a median for the years 2006-10, the number remained at the same level. In one patient the recurrence of malaria falciparum was observed following the failure of treatment undertaken in Cameroon. *Plasmodium* species was determined in 18 cases (86%); including 10 (61%) caused by *P. falciparum*, 6 (33%) by *P. vivax* and one by *P. malariae.* One patient was diagnosed with mixed invasion. Infections were occurred most frequently during work-related trips (43%) or tourist trips (38%), in other cases the purpose of the journey was to visit the country of origin (14%) or its purpose remained unknown. Only four people took any chemoprophylaxis; in one case, a drug matched inappropriately to the destination was applied, the remaining three persons applied drugs contrary to the recommended drug regimen.
CONCLUSIONS. The number of cases of imported malaria in Poland remained at a low level, similar to that observed in previous years. A large number of delayed diagnoses (more than half of the reported cases) and another case of fatal outcome in the course of malaria indicate still low awareness of malaria threat among both travelers and primary care physicians.

Keywords: *imported malaria, epidemiology, Poland, 2012*

The aim of the paper: to assess the epidemiological situation of malaria in Poland in 2012 in comparison to previous years.

MATERIAL AND METHODS

The assessment of malaria epidemiological situation in Poland in 2012 was performed based on the analysis of individual reports of malaria cases sent to the NIPH-NIH by sanitary-epidemiological stations and data from the annual bulletin "Infectious Diseases and Poisonings in Poland in 2012," (Warsaw, NIPH-NIH and CSI). In 2012, malaria cases which occurred in Poland and met the case definition criteria approved by the EC in its decision dated 28 April 2008 amending Decision 2002/253/EC were recorded. According to the definition, confirmed case is any person with fever or a history of fever, and with the demonstration of malaria parasites in the blood films using light microscopy or by detection of *Plasmodium* nucleic acid or *Plasmodium* antigen .

RESULTS

In 2012, a total of 21 cases of malaria were registered in Poland (incidence 0.55 per 1 million population). It was 7 cases (50%) more than in 2011. Compared to the median for the period 2006-2010, the number was similar (median = 22) and remained in the range of annual fluctuations observed previously. One fatal

Table I. Number of imported malaria cases in Poland in 2012 by country of exposure and species of *Plasmodium*

Continent and country of exposure		Number of cases	Species of *Plasmodium*					Number of deaths
			falciparum	*vivax*	*malariae*	mixed	*spp*	
Africa	**TOTAL**	**11**						**1**
	Cameroon	1	1	-	-	-	-	-
	Côte d'Ivoire	1	1	-	-	-	-	-
	Gabon	1	-	-	1	-	-	-
	Kenya	2	1	-	-	-	1	-
	Nigeria	1	1	-	-	-	-	-
	Rep.of the Congo	1	1	-	-	-	-	-
	Sierra Leone	1	1	-	-	-	-	1
	South Africa	1	1	-	-	-	-	-
	Togo	1	1	-	-	-	-	-
	Uganda	1	1	-	-	-	-	-
Asia	**TOTAL**	**10**						**0**
	India	4	-	3	-	1	-	-
	Indonesia	1	-	1	-	-	-	-
	Indonesia,Thailand, Vietnam,Sri Lanka, India	1	-	-	-	-	1	-
	Nepal,India, Thailand, Cambodia,Laos	1	-	1	-	-	-	-
	Pakistan	1	-	1	-	-	-	-
	Thailand	1	-	-	-	-	1	-
	Thailand, Malaysia, Indonesia, Singapore	1	1	-	-	-	-	-
TOTAL		**21**	**10**	**6**	**1**	**1**	**3**	**1**

case of citizen of South Africa was reported, who was temporarily residing in Poland and probably was infected in Sierra Leone.

In total 16 men (76%) and 5 women aged 22-66 years (mean age-39 years) fell ill.

All registered cases were infected in malaria-endemic countries with one case, a ship's crew member, being classified as a recrudescence of malaria falciparum after the failure of treatment undertaken in Cameroon. Out of the patients, four were foreign nationals, including three who came from malaria-endemic countries. As many as 11 patients (52%) acquired the infection in African countries, while the remaining cases in Asia (Table I.). In all patients, except one, a diagnosis was confirmed by microscopic examination of blood films. Additionally, in 10 cases a immunochromatographic tests were done; including two negative test results and one positive test result which was the only confirmation of the diagnosis. In one case, in which mixed invasion was detected in the blood film, diagnosis was confirmed by molecular test PCR. In half of all patients, the first confirmation of the diagnosis was obtained after five or more days beginning from the onset of the symptoms.

Species of *Plasmodium* were determined in 18 (86%) cases, of whom in 10 cases (56%) *Plasmodium falciparum* was identified, in six cases - *P. vivax*, in one - *P. malariae* and one case was diagnosed with mixed invasion of *P. falciparum* and *P. malariae*.

In 33% of malaria cases, its clinical course was described as severe, but only one case met the WHO criteria for severe malaria.

One of the cases with severe disease was caused by *P. vivax*, which usually leads to mild form of disease. Other cases of severe malaria were caused by *P. falciparum* or mixed invasion with *P. falciparum* and almost all (except mixed invasion) were imported from Africa.

Similarly to the previous years, infections were acquired most often during tourist trips (8 persons) or business trips (9 persons). In the latter group, there were two missionaries and one ship's crew member. Among the patients there were also three students, including two individuals from Africa, visiting the country of origin, and in one case the purpose of travel was not determined.

The information on the use of antimalarial chemoprophylaxis was obtained from 17 patients (81%) - four people applied drugs contrary to the recommendations or took medication matched improperly to the destination, and the remaining 13 patients did not use any form of chemoprophylaxis.

DISCUSSION

The epidemiological situation of malaria in Poland remains at the level observed in previous years - only imported malaria is reported and the number of cases registered annually remains low. The characteristics of the population afflicted have not changed: individuals traveling for touristic and business purposes and men are the predominant groups among malaria cases. Year by year, the changes of direction of travels are observed, in 2012 the cases imported from Asian countries accounted for nearly 50% of all cases .

In 2011, a large outbreak of locally acquired malaria was observed in Greece (in a single region: Laconia of

Southern Peloponnese), which raised concern throughout the European region associated with the threat of the introduction of malaria in other European countries. As a result of actions undertaken, including implementation of active surveillance, in cooperation with joint WHO-ECDC mission, the number of autochthonous malaria cases in Greece in 2012 was twice as less as than in the previous year. Therefore, the malaria risk to travelers visiting Greece is considered very low, and no country has introduced restrictions in travels to Greece.

Despite the absence of new threats, a large number of cases with delayed diagnosis and the number of cases of severe malaria form still raise concern. After three years in which there were no deaths due to malaria in Poland (in cases reported to surveillance system), in 2012 there was again a fatal outcome due to disease which is considered to be fully curable, provided that appropriate treatment is initiated as soon as possible. No detailed information on the reasons that led to the recent death, but the repeated reports of incorrect or delayed diagnoses, especially in primary care settings, are indicative of a low malaria threat awareness among both patients and practitioners.

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