

Epidemiological data of leptospirosis in Albania

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Abstract

This study presents epidemiological data of human leptospirosis disease for the period 2005-2012. Leptospirosis is an infectious disease which is quite widespread in the human population of Albania. It is in the list of notifiable diseases. Leptospirosis is endemic in Albania. Despite it is a neglected zoonotic disease and not all cases are reported, leptospirosis represents 2% of all reported zoonotic diseases in Albania.

According to the epidemiological data of the Institute of Public Health, during the last decade, there is an obvious increase of leptospirosis frequency (in 2012 it was reported 0.5 cases/10⁵ inhabitants compared to 0.2 cases/10⁵ inhabitants in 2005). This fact may point to an increase in the risk factors exposure, mainly with professional engagement on endemic areas, the contact with infected domestic animals and poor hygienic conditions. In all cases, professional exposure and recreational activities were identified as risk factors for the spreading of leptospirosis. The disease is more frequent during summer and autumn seasons. Laboratory diagnosis is based on ELISA test results. Sporadically, some very severe cases are implicated as fatality ones.

Further investigation must be undertaken in order to understand the reasons of increase in the incidence rate of leptospirosis, in order to identify the sources of infection, changes in epidemiological behavior, possible risk factors and routes of transmission of this infectious disease.

Keywords: domestic animal, endemic, leptospirosis.

Introduction

Leptospirosis is a worldwide zoonotic infection with a much greater incidence in tropical regions and has now been identified as one of the emerging infectious diseases. The epidemiology of leptospirosis has been modified by changes in animal husbandry, climate, and human behavior. Resurgent interest in leptospirosis has resulted from large outbreaks that have received significant publicity. Leptospirosis is a zoonotic bacterial disease of endemic character in Albania (1). Clinical manifestation of the disease ranges from mild to severe forms, depending on the serovars. Often, cases of leptospirosis are incorrectly diagnosed and identified as meningitis or encephalitis (2). The disease is caused by *Leptospira* spp. with more than 200 pathogenic serovars identified. The resulting disease is spread throughout the world, with the exception of the polar regions, constituting an occupational hazard (3). Reservoirs of infection are domestic and wild animals, where rodents, especially rats, play an important role.

Sero-epidemiological surveys carried out by the Institute of Public Health (IPH) in Albania during the period 1980-1990 have demonstrated a predominant circulation of the species *Leptospira Pomona* and *Leptospira icterhaemorrhagiae*; beef has proved to be the main natural host of infection (4,5).

This aim of this study was to provide an epidemiological profile of leptospirosis in Albania.

Methods

Leptospirosis as part of Disease Mandatory Reporting System is routinely reported by local health authorities in each district of Albania, as suspected or laboratory confirmed cases for each individual. The information, which contains comprehensive demographic data (name, address,

sex, age, and occupation) and a detailed case history, is transmitted to Tirana on paper by fax, mail, or email and is subsequently computerized within a central database dedicated to leptospirosis prepared in EPINFO 2004.

The questionnaire employed in this study examined potential risk factors associated with demographic and socioeconomic data; residential sanitary conditions; work-related, recreational, and domestic activities; and exposure to contaminated environmental sources and potential animal reservoirs (1,6,7).

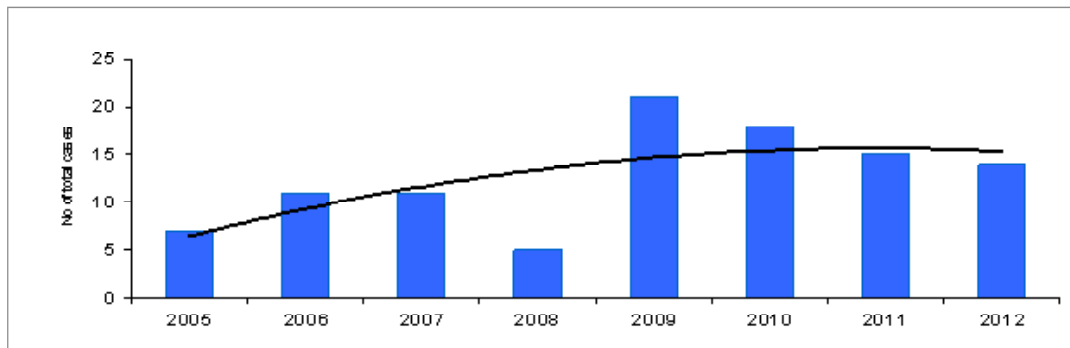
Results and Discussion

The disease in humans is a consequence of accidental contact with the urine of infected animals and professional contact with infected animals. Social and cultural factors such as food habits play an essential role too. The most affected areas are the North and Central parts of Albania.

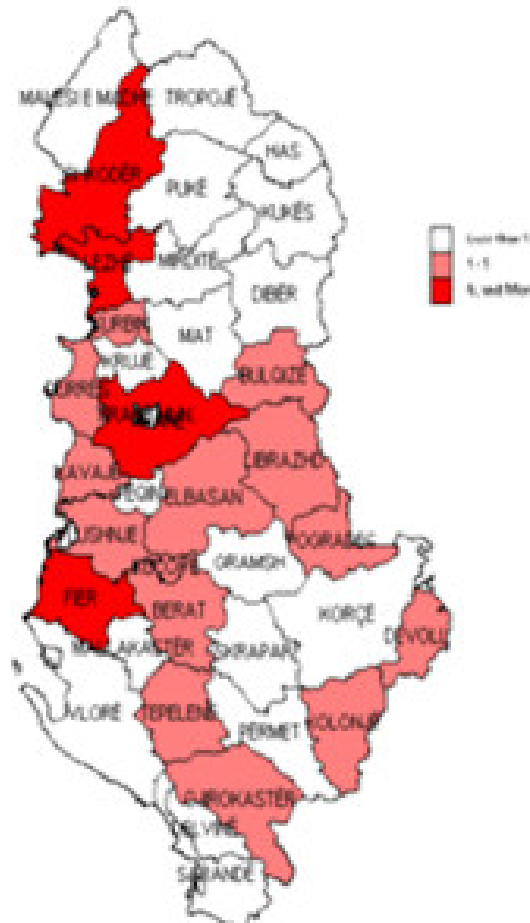
In total, 105 cases were reported during the period 2005-2012 (1,5) (Figure 1). The incidence varied from 0.5 cases/10⁵ population in 2012 to 0.2 cases/10⁵ population in 2005.

The highest percentage of infected people was among 15-44 year old and 45-59 year old individuals (Figure 2). Several cases have been reported sporadically as fatal cases. The test mostly used is ELISA method IgM, IgG, single serum samples from icterohemorrhagic form of leptospirosis in the acute phase, collected 3-14 days (mean=7 days) after the onset of symptoms (2,8,9).

Forty five (48%) cases resulted positive for IgM and 24 (25%) cases resulted positive for IgG. In 12 (27%) cases the diagnosis was established based upon clinical criteria. Meanwhile, men resulted to be more infected (92.3%) than women, $P < 0.01$ (7,10,11).

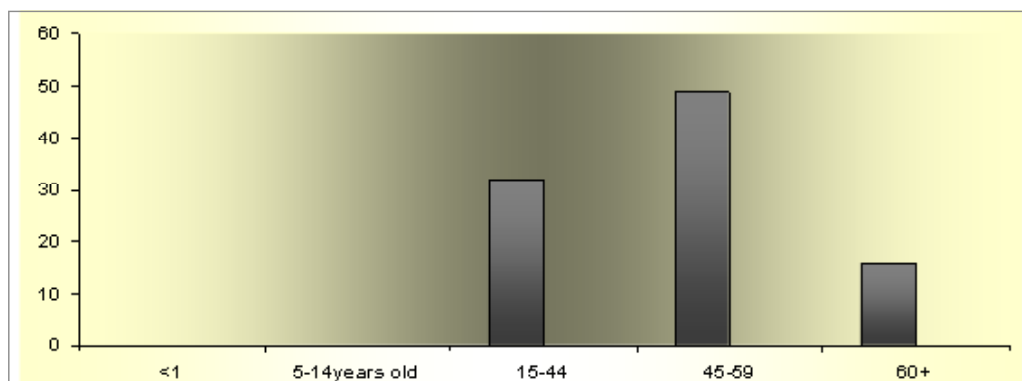
Figure 1. Leptospirosis cases over the years (total number of cases 2005-2012)

The incidence of leptospirosis was estimated at year under investigation (1,6). approximately 0.5 cases/100.000 population in each

Figure 2. Geographical distribution of Leptospirosis according to districts of Albania

During the period from 2005 to 2012, 17 of 36 districts in Albania (47.2%) were affected by leptospirosis, mainly in the North and Central parts

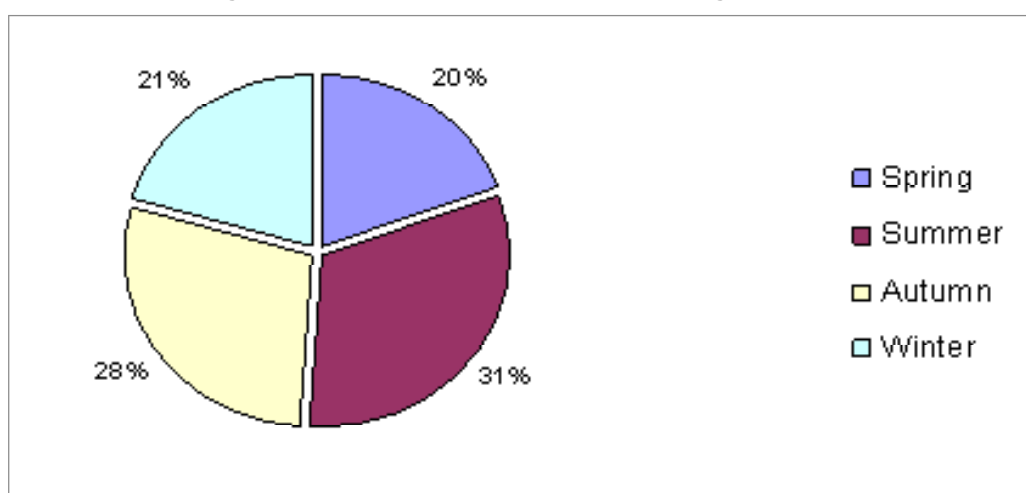
of the country. Shkodra had an incidence of 0.5 cases/ 10.000 population, whereas Lezha and Tirana had an incidence of 0.3 cases/10.000) population (1,5,8).

Figure 3. Leptospirosis according to age-group (total number of cases)

The incidence of leptospirosis is the highest among males aged 15-59 years. Such a feature (sex- and-age-specific) of the disease in the human population is mainly related to the occupational nature of

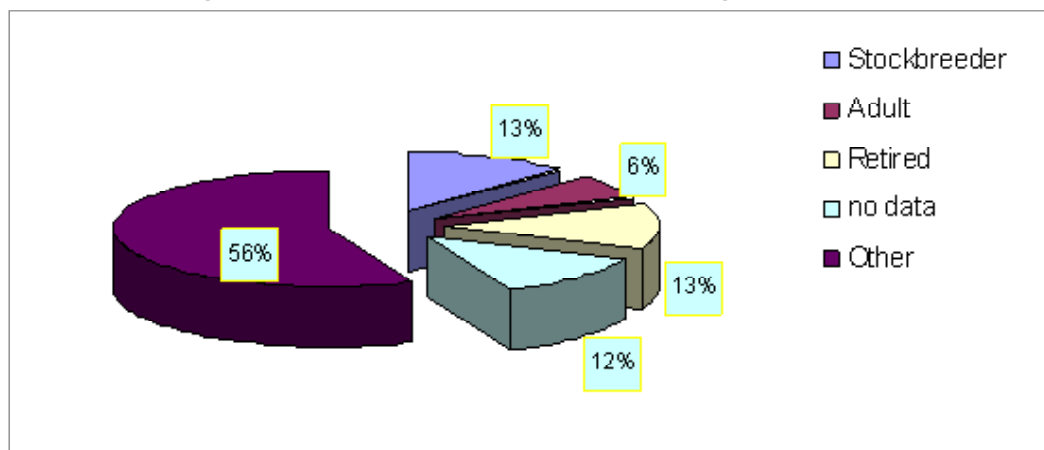
leptospirosis (1,6,7).

The disease is more frequent during summer and autumn, but cases of leptospirosis have been reported during all the year round (12) (Figure 4).

Figure 4. Leptospirosis distribution according to seasons

People on rural areas were most affected with 63.2% of the total cases reported. The ratio between the cases in urban areas and rural areas (rural / urban) was 2:1. Apparently, this is related to the high degree of exposure to sources of infection by men (4,13).

The most affected occupation by leptospirosis includes stockbreeders (about 13%) (Figure 5), whereas about 56% of the disease is evident in some other occupations such as fishermen, ditchers, or construction workers (1,11).

Figure 5. Distribution of Leptospirosis according to occupation

One potential risk factor is considered the contact with persons who have dealt with the manipulation of dead animals, or the contamination of food with the urine of infected animals during flooding (12,14,15).

Conclusion

Despite the fact that there is underreporting of leptospirosis cases, there has been an increase of

this infectious disease in Albania in the past decade, as confirmed by the Institute of Public Health data. The increase of cases during past decade should be further investigated and assessed whether it relates to climate change, or other factors. There is a need to strengthen joint actions with veterinary system to promote intersectoral collaboration in Albania and support the successful implementation of national control programs at community level.

Conflicts of interest: None declared.

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