Leishmaniases: Epidemiological Report of the Americas

PRESENTATION

Leishmaniases are present in all continents and are endemic in 98 countries, with more than 350 million people at risk.

In the Americas, leishmaniases represent a significant public health problem due to its high morbidity and wide geographic distribution. Its complex transmission cycle includes different species of parasites, vectors and reservoirs. Poor populations with difficult access to health services are most affected.

Strengthening surveillance and disease control against leishmaniases was taken as a commitment by countries in the World Health Assembly, Resolution WHA 60.13, 2007. This commitment was reinforced in the Americas, by Pan American Health Organization (PAHO) Directing Council through the adoption of Resolution CD49.R19, 2009.

The PAHO through the Regional Program on Leishmaniases contributes technical cooperation to the countries of the region. In particular, the Regional Program aims to improving access to diagnosis and treatment of affected persons, strengthening surveillance and control activities and processes for decision making, building capacity, and advancing communication between local health professionals and managers within the region.

This report presents the epidemiological situation of leishmaniases in the region and is a joint effort of the National Programs on leishmaniases. Despite some data limitations, a number of epidemiological parameters can be analyzed and discussed to inform efforts for the improvement of leishmaniases surveillance in the Americas.

INTRODUCTION

In the Americas, leishmaniases are zoonotic diseases caused by different species of Leishmania protozoa and transmitted to humans and animals by insects of the family Psychodidae. In humans it causes a set of clinical syndromes that may involve the skin, mucous membranes and viscera.

The parasite is a protozoan belonging to the Trypanosomatidae family. The genus Leishmania is divided into two subgenera, Leishmania and Viannia, and comprises 22 species pathogenic to man, of which 15 have been identified in the Americas, Figure 1.

Vectors of Leishmania parasites are hematophagous Diptera (Psychodidae family, subfamily Phlebotominae), commonly known as sand flies. In the Americas the genus Lutzomyia is the most important, with over 400 species identified. However, few more than 50 species are considered involved in the transmission of Leishmania in the region.

In the Americas, the cycle of transmission of leishmaniases is zoonotic, requiring the presence of an animal reservoir.
Leishmaniases show clinical polymorphism, depending on the species of *Leishmania* and the immune response mounted by the host. Clinical manifestation ranges from benign and self-limiting cutaneous leishmaniasis, to grave forms such as mucosal leishmaniasis, diffuse cutaneous leishmaniasis and visceral leishmaniasis.

**EPIDEMIOLOGICAL SITUATION**

**Cutaneous and Mucosal Leishmaniases**

Eighteen countries of the region reported cases of cutaneous and mucosal leishmaniasis to PAHO-WHO in the period 2001 to 2011. Mexico and Venezuela reported data only for 2011 (Table 1).

Between 2001 and 2011, 638,702 cases were reported in the region, with an annual average of 58,063 cases and 2005 reported the highest number of cases, Table 1.

Table 1 shows that, for the period 2001 to 2011, 257,812 cases (40.36%) were registered in the Andean region, and 100,475 cases (15.73%) in Central America. Three countries, Brazil with 270,572 cases (42.36%), Colombia with 128,535 cases (20.08%) and Peru with 85,410 cases (13.37%) contributed with 75.8% of all the cases reported in the period 2001-2011 in the region.

For 2011 only, we analyzed the epidemiological attributes of the disease and those operational indicators relating to leishmaniases surveillance. We also analyzed the geographical distribution of cases of cutaneous and mucosal leishmaniasis at the first sub-national administrative level (departments, states, provinces, regions, etc.), Figure 2.

In 2011 57,287 cases were registered in the Americas with an incidence rate of 16.51 cases per 100,000 population. Colombia (9,684 cases), Peru (11,204 cases) and Brazil (21,306 cases) reported the highest number of cases, although the highest incidence...
rates were observed in Panama (90.54 / 100,000 pop.) and Nicaragua (65.38 / 100,000 pop.), Figure 3.

In 2011, out of 52,629 cases with information available on clinical forms, 95.7% corresponded to the cutaneous form and 4.3% to the mucosal or mucocutaneous form. The countries with the highest proportion of cases of mucosal leishmaniasis were Paraguay with 44.6% of cases, Bolivia with 16.2% and Argentina with 11.4%. It is worth mentioning that Panama did not report information on clinical forms, and Ecuador did only for half of the cases.

44,082 cases (76.9%) reported in 2011 had data available on gender. Of these, 70.6% were male. In Panama, Costa Rica and Nicaragua the distribution of cases by gender was even.

52,410 cases (91.5%) reported in 2011 had data available on age. Of these, 36,670 cases (70%) were in the age group 10 to 50 years old. The predominance of cases in this age group was observed in all sub-regions and countries, except for some Central American countries, such as Nicaragua and Panama that reported a greater proportion of cases in children under 10 years of age (49.1% and 55.0%, respectively). Notably, Paraguay (40.8%), Argentina (32.6%), Mexico (21.4%) and Brazil (19.7%) reported the highest proportion of cases in people over 50 years of age. This is important as this age group requires greater care in the prescription and monitoring of treatment due to drug toxicity and increased vulnerability due to pre-existing conditions.

Regarding the criteria for confirmation of cases in 2011, 75.6% were diagnosed by laboratory tests, but for 16.4% of these it was not possible to determine the criteria used by the health services for the confirmation of the diagnosis.

38,808 cases of visceral leishmaniasis were recorded in the Americas in the period 2001 to 2011 (Mexico and Venezuela only reported data for 2011). Although 37,503 of these (96.6%) were reported by Brazil, we observe an increase in the number of cases of visceral leishmaniasis in some countries of the Region in recent years.

In the period 2001 to 2011, more than 10 countries reported cases of visceral leishmaniasis. Figure 4 shows the increasing numbers over the years in Paraguay (597 total period) and Argentina (96 total period). Colombia reported a total of 513 cases in the period, mostly contributed by a large surge in 2003 (Figure 4). The other seven countries that reported cases in the period were: Honduras (40), Nicaragua (26), El Salvador (12), Guatemala (4), Venezuela (15), Bolivia (1) and Mexico (1). Figure 5 shows similar time trends for the incidence rates.

In 2011 alone, 58 first sub-national administrative units
Figure 5. Incidence of visceral leishmaniasis by countries, Americas, 2001 to 2011.

Source: PAHO-WHO: Data reported by Leishmaniases programs of countries of the Region of the Americas.

Figure 6. Distribution of cases of visceral leishmaniasis by country and first sub-national administrative level, Americas, 2011.

Source: PAHO-WHO: Data reported by Leishmaniases programs of countries of the Region of the Americas.

(departments, provinces, states or regions depending on the administrative division in each country) in 8 countries reported 4004 cases of visceral leishmaniasis, (Figure 6). The incidence rate of the disease in the region in 2011 was 2.05 cases per 100,000 population. The largest number of cases was reported in men with 61.7% (2,469) of cases. Children under 5 years of age were mostly affected (1,456 cases, 36.6%), followed by the age group 20 to 50 years old, with 1,230 cases (30.9%).

3,519 (87.8%) cases of visceral leishmaniasis were confirmed by laboratory testing. Information on the clinical course was available for 20.6% of the cases and only five countries (Argentina, Brazil, Mexico, Paraguay and Venezuela) of the 8 countries that reported in 2011. Overall, the recovery rate in the region was 71% (2845 cases) and the fatality rate was 8.4% (335 cases).

FINAL REMARKS

Despite advances in leishmaniasis surveillance in the region, significant challenges remain, in particular relating to the quality of data and data-related processes, analyses, and methodologies for decision making.

This epidemiological report presents a simple descriptive analysis of leishmaniasis in the region. In doing so, it shows basic weaknesses of the regional information systems, such as lack of epidemiological data and that on surveillance related processes for some countries. Other studies on leishmaniasis in the Region have also shown the occurrence of case underreporting.

A large effort is being carried out to consolidate leishmaniasis data into a regional information system to facilitate access by all countries to standardized data and indicators. This is expected to improve surveillance design, decision making and interventions planning (health services organization, training health professionals for monitoring and care, improved diagnosis, acquisition of necessary medicines, etc.). The ultimate goal is to improve the access of those affected by leishmaniasis to quality diagnostic and treatment services. Moreover, access to better epidemiological information will guide technical cooperation activities and help in the definition of research priorities on leishmaniasis.

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