

Since 2008, the number of cases reported has been more than 3000 per year and global comparison data shows Sri Lanka as the country with the highest incidence of leptospirosis. Recently, 4554 leptospirosis cases have been reported in Sri Lanka in 2020, with a death count of 37 due to the disease, Epidemiology Unit disclosed.

Conclusion

Leptospirosis is generally spreading disease in Sri Lanka. Recently [in 2019 and 2020] nearly 4000 cases had been reported. And also when we see 2017, 2016, 2015 reported cases are not more different than 2020. So we can think its not increasing. health care workers controlling this situation. Also for leptospirosis no need specialized vaccine, using antibiotics are enough for control it. So government of Sri Lanka should supply continuously relevant antibiotic drugs to hospital all over Sri Lanka, specially regions which reporting high number of cases. And also government of Sri Lanka should give message to people how prevent from this disease. Specially people who live in rural areas, because lot of paddy fields situate in rural areas and also majority of farmers living in these areas. So health ministry authorities can use mass media like television, radio, newspapers for distribute preventive methods. Also can use social media platforms like internet facebook instagram whatsapp. Also can use creative posters and banners.

REFERENCES

1. National Reference Laboratory for Leptospirosis by Medical Research Institute of Srilanka (2018).
2. National Guidelines on Management of Leptospirosis by Epidemiology Unit Ministry of Health, Nutrition and Indigenous Medicine Sri Lanka (2016).
3. Sri Lankan Journal of Infectious Diseases Leptospirosis by J. N. Warnasekara and S. Agampodi (2017).
4. An Empirical Study on Human Leptospirosis Cases in the Western Province of Sri Lanka S. R. Gnanaprasam* 1 Department of Mathematics, Faculty of Natural Sciences, The Open University of Sri Lanka (2017).

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LEISHMANIASIS AS AN EMERGING INFECTIOUS DISEASE IN SRI LANKA

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Introduction

Leishmaniasis is a vector-borne zoonotic disease caused by obligate intracellular parasitic protozoa of the genus *Leishmania* which includes species like *L.donovani* and *L.tropica*.

It is recognized by the World Health Organization as one of the neglected tropical parasitic diseases worldwide. *Leishmania* currently affects 6 million people in 98 countries. About 0.9-1.6 million new cases occur each year, and 21 species are known to cause the disease in humans.

The disease comes into human population when human, flies and the reservoir hosts share the same environment. *Leishmania* infection is transmitted to humans and to other mammals by the bite of an infected sand fly vector.

Three common forms of leishmaniasis are: Cutaneous leishmaniasis (CL), Mucocutaneous leishmaniasis (MCL) and Visceral leishmaniasis (VL). Of the three different clinical presentations of infection, CL is the most common, producing ulcerated skin lesions on exposed body parts. MCL damages the mucous membranes of the nose, mouth and throat. VL, affects internal body organs, such as the spleen, liver and bone marrow, and is considered as the most severe form of the disease [1-7].

Goal

To give a territorial-temporal characterization of the incidence of the leishmaniasis in Sri Lanka and evaluate the effectiveness of the organization of treatment and preventive measures.

Material and Methods of research

The epidemiological analysis and generalization of modern medical scientific literature on this topic. University Of Colombo Faculty Of Medicine (Colombo, Sri Lanka), which maintains data on laboratory-was made through visualization of *Leishmania* sp. amastigotes upon microscopic examination of Giemsa-stained lesion aspirate smears or slit-skin scrapings. The population was estimated in each district by using census data from 2001 and 2020 with projections for each year as given by the government of Sri Lanka. To analyze age and sex distribution over time and by region, 3 health divisions was selected with the highest incidence rates in the Southern Province in Sri Lanka.

The results of the research and their discussion

During 2001–2018, island-wide spatial distribution of reported all cases of the leishmaniasis was 15.300 (Figure 1).

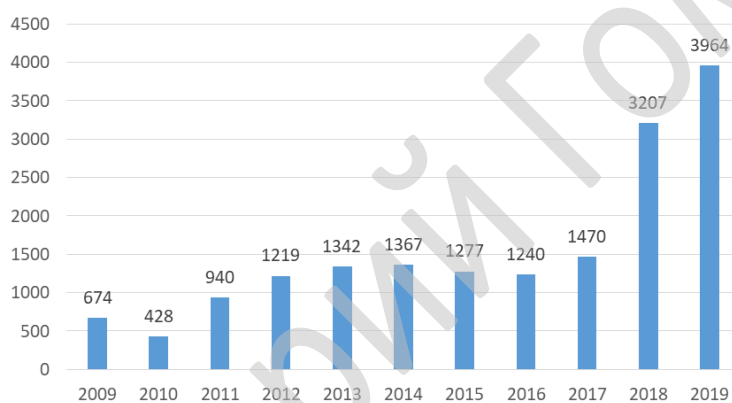


Figure 1 — Annual number of recorded leishmaniasis cases in Sri Lanka from 2009 to 2019

(Source: weekly epidemiology report, epidemiology unit, ministry of health)

Patient age ranged from 2.5 years to 77 years, with a median of 28 years. The highest number of cases was within the 10–19 year's age group (Table 1). Gender distribution showed both males and females affected almost equally.

Table 1 — Gender and age distribution of cases of the leishmaniasis

Age group(years)	No.(%)male	No.(%) female	Total frequency
0–9	5 (8.8)	10 (17.9)	15 (13.3)
10–19	15 (26.3)	12 (21.4)	27 (23.9)
20–29	9 (15.8)	8 (14.3)	17 (15.0)
30–39	8 (14.0)	9 (16.1)	17 (30.1)
40–49	8 (14.0)	6 (10.7)	14 (24.7)
50–59	3 (5.3)	2 (3.6)	5 (8.9)
60–69	5 (8.8)	2 (3.6)	5 (12.4)

Leishmaniasis is transmitted by the bite of infected female sandflies which can transmit the protozoan *Leishmania*. Sandflies inject the infectious stage, metacyclic promastigotes, during blood meals. The metacyclic promastigotes of the puncture wound are phagocytosed by macrophages and transform into amastigotes. Amastigotes multiply in infected cells and affect different tissues, partly depending on the host and partly on the *Leishmania* species involved. These different tissue specificities

cause different clinical manifestations of the various forms of leishmaniasis. Sandflies are infected during blood meals on infected hosts when they ingest macrophages infected with amastigotes. In the midgut of the sandfly, the parasites differentiate into promastigotes, which multiply, differentiate into metacyclic promastigotes and migrate to the proboscis.

Clinical signs and symptoms that serve as diagnostic indicators are not pathognomonic to either VL or CL. VL is frequently confused with similarly presenting conditions like malaria, tropical splenomegaly, schistosomiasis and typhoid fever. CL is often misdiagnosed as one or more of several medical conditions including tropical ulcers, impetigo, infected insect bites, leprosy, lupus vulgaris, tertiary syphilis, yaws, blastomycosis and skin cancer. Several diagnostic methods are followed including parasitological, immunological and molecular biological techniques.

Experimental infection of animals provides a robust biological means to confirm or refute suspected but unsubstantiated cases of leishmaniasis. Serological methods of diagnosis are sensitive, specific and cost-effective, while molecular tools are extremely sensitive and applicable to molecular epidemiological studies beyond the scope of routine clinical diagnosis.

Leishmaniasis was not often reported in Sri Lanka before the 1990s, and neither local nor international health authorities have considered it a serious public health threat in the country.

Reporting on patients with leishmaniasis has improved over the years, as has the level of disease awareness among clinicians and healthcare personnel.

Although leishmaniasis can affect both sexes in all age groups, previous studies consistently indicated a male predominance among cases in groups 20–40 years of age. Our study showed differences in the sex and age distribution between the northern and southern disease foci.

Conclusions

Leishmaniasis is considered second only to malaria in importance as a protozoan disease causing human mortality and morbidity worldwide. Despite the sizeable public health burden to Sri Lanka, the severity of the disease and the extent of its spread have been underestimated since its introduction three decades ago. Hence, the clinical case count has increased year on year and the entire island is now recognized as a disease-emerging region. Investment in strategic research that focuses on the key areas of epidemiological surveying of infection, early and effective diagnosis of disease and entomological mapping of vector species will help to plug existing knowledge gaps, thereby supporting Sri Lanka in its bid to regain leishmaniasis-free status. As mentioned above in the graph infants are the first cases of this outbreak.

REFERENCES

1. World Health Organization. Leishmaniasis. 2019 [cited 2019 Feb 20]. <https://www.who.int/en/news-room/fact-sheets/detail/leishmaniasis> External Link.
2. Trends in recently emerged *Leishmania donovani* induced cutaneous leishmaniasis, Sri Lanka, for the first 13 years / Y. Iriwardana [et al.] // *BioMed Res Int*. — 2019. — 4093603.
3. Rogers, M. E. The role of promastigote secretory gel in the origin and transmission of the infective stage of *Leishmania mexicana* by the sandfly *Lutzomyia longipalpis* / M. E. Rogers, M. L. Chance, P. A. Bates // *Parasitology*. — 2002. — Vol. 124. — P. 495–508.
4. Genomic insights into virulence mechanisms of *Leishmania donovani*: evidence from an atypical strain / S. R. Samarasinghe [et al.] // *BMC Genomics*. — 2018. — Vol. 19(1). — P. 843. doi: 10.1186/s12864-018-5271-z.
5. Nawaratna, S. S. Cutaneous leishmaniasis in Sri Lanka: a study of possible animal reservoirs / S. S. Nawaratna, D. J. Weilgama, K. Rajapaksha // *Int J Infect Dis*. — 2009. — Vol. 13(4). — P. 513–517. — doi: 10.1016/j.ijid.2008.08.023.
6. Use of a clinical tool for screening and diagnosis of cutaneous leishmaniasis in Sri Lanka / H.V.Y.D. Siriwardana [et al.] // *Pathog Glob Health*. — 2015. — Vol. 109(4). — P. 174–183. — doi: 10.1179/2047773215Y.0000000024.
7. Lawyer, P. G. Leishmaniasis and trypanosomiasis. In: Eldridge BF and Edman J (eds). *Medical Entomology. A textbook on public health and veterinary problems caused by arthropods* (2nd ed) / P. G. Lawyer, P. V. Perkins // Dordrecht: Kluwer Academic Publishers. — 2004. — P. 231–298.