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## Combatting Leishmaniasis in India

by *John Ramlochand*

Creating a better understanding of the causes of leishmaniasis and the most effective responses to it. It is dry and hot on the dusty main street of Hassanpur village in Bihar, Northeastern India. Dr. L.S. Prasad, known throughout the state as "Dr. Lala," is beginning to sweat in the 43°C heat. For an hour he has sat in the centre of the village and examined twelve patients while over a hundred villagers watched.

The patients are mostly children. Dr. Lala is checking for a swollen spleen, a darkening of the skin, and fever. These are signs of visceral leishmaniasis: one of the most debilitating illnesses that regularly affects residents in this region.

Epidemics in 1992 of visceral leishmaniasis (VL) or "Kala-Azar" (Black Fever), as it is commonly known in Hindi, killed more than 100,000 people in India and Sudan. VL infects the body, breaking down the various organ systems such as the spleen, bone marrow, liver, lymph nodes and skin. It invariably causes death if left untreated. Leishmaniasis is, however, not always fatal. There are two other major forms: cutaneous leishmaniasis (CL) and mucocutaneous leishmaniasis (MCL). CL produces skin lesions, both chronic and self-healing. MCL tends to invade the mucous membrane of the upper respiratory tract, destroying the soft mucocutaneous tissue of the nose and mouth, thus resulting in gross mutilation and disfiguration. All three forms of leishmaniasis cause fever, an enlarged abdomen, general weakness, headaches and dizziness, weight loss, sweating and diarrhoea.

The leishmaniasis are a group of insect-transmitted parasitic diseases that are among the most misunderstood and least studied of endemic diseases. Three parasitic species are the primary culprits: *Leishmania donovani*, *L. tropica*, and *L. braziliensis*, which lead to the visceral, cutaneous, and mucocutaneous forms of leishmaniasis respectively. Lately, these parasites are known to have divided into several closely related subspecies and strains, complicating both the study and treatment of the diseases.

The parasites are transmitted mainly by the bites of *Phlebotomus* and *Lutzomyia* sandflies. These insects - about half the size of a mosquito - are in turn infected either from people or, more frequently, from domestic or wild rodents, dogs and other mammals. Person-to-person transmission of the diseases is now known to occur in some areas of India and Bangladesh, but it is usually animals that help spread the diseases.

Leishmaniasis often affects the poorest towns and villages, which are usually distant from schools and hospitals and thus tend to receive only minimal attention. As well, areas hardest hit by visceral leishmaniasis infections commonly overlap with endemic malaria regions, possibly leading to underestimates of the importance of VL. People with cases of CL and MCL often try to hide their scars and disfigurements rather than seek treatment.

This kind of behaviour heightens the invisibility of leishmaniasis as a major public health concern.

Although worldwide cases have surpassed 12 million, it remains largely unknown. The number of new cases officially reported annually is about 300,000 for CL and MCL, and 90,000 for VL. However, the World Health Organization estimates the true annual number of cases at about one million.

In developing nations, leishmaniasis causes not only individual suffering, it also contributes to higher unemployment, lower productivity and added health-care costs. Therefore, leishmaniasis is both a biomedical issue and a serious development one.

Since 1986, IDRC has supported various programs to combat this illness. The Centre has made a concerted effort through workshops, exchanges and community-based research in ten countries to generate information for the prevention and control of leishmaniasis. This initiative has grown into an information sharing network that links researchers and promotes environmentally sustainable solutions based on full community participation.

Thus Dr. Lala does not, figuratively, sit alone. He heads a joint project between IDRC and the Rajendra Memorial Research Institute of Medical Sciences (RMRI) - a division of the Indian Council for Medical Research - that studies leishmaniasis transmission in Bihar and aims to develop sustainable control strategies through community mediated approaches.

As Dr. Lala examines villagers, another member of the research team, Dr. Archana Sinha, head of the Department of Sociology at Patna University, seeks out shy villagers in Hassanpur who may have, or be carrying, the disease. Some she leads back to Dr. Lala. In other cases, she records their medical histories or simply listens to their fears and needs. It is a long process, but Dr. Sinha notes: "This is our first visit to this village. In other places, they see us and come running with their children. It takes time to build up their trust....That's my job here." Dr. Sinha adds, "I must stress that it is important to recognize that these people are not stupid. They may be illiterate, but they are wise to the problems their communities face. The challenge for us is to explain how this disease works and give practical suggestions on how to fight it."

To reach out to these communities a variety of posters, drawings and information in simple language is distributed. Consultation with village elders and local medical staff is standard practice before the team approaches a village. Because the aim is to change people's understanding and attitudes about the disease, the first visit is crucial in creating the right impression. Therefore, it always proceeds with the participation of village leaders.

Creating a better understanding of the causes of leishmaniasis and the most effective responses to the disease is not always an easy task. Dr. Mahabir Das, assistant director of the project, relates that "during the last leishmaniasis epidemic in Bihar in 1992, people in a nearby village held a ceremony to counteract the disease: they sacrificed a goat to the goddess Kali." Clearly, he adds, more work needs to be done in terms of improving people's understanding and behaviour or the material conditions of their existence that might have a direct bearing on their susceptibility to leishmaniasis.

The national and state governments have not always been forthcoming with assistance. Despite recommendations from Dr. Das and others as early as 1987 that extra funding for more staff, medicines, studies and an increase in insecticide spraying was necessary to prevent the predicted epidemic of leishmaniasis, the government's response was sporadic at best. The cost of such a program was simply too burdensome.

The need for a long-term, community-supported solution thus became an urgent one. Dr. Lala, because of his reputation in the state, and his vast experience (over fifty years) in treating and researching leishmaniasis, was considered the natural choice to assemble a team that would organize this new approach. He also seems to have a boundless energy; in spite of his 81 years, it is quite common for him to put in twelve-hour days at his clinic and at the RMRI lab, seven days a week.

"We must work hard," states Dr. Lala. "This disease has a long history in this part of the world and I have

seen too many people suffer. If we can bring all the elements together, and I believe we have made a good start, we can eradicate Kala-Azar."

Indeed, watching the efforts of this team of researchers in villages like Hassanpur, it is possible to believe that with the continuing support this project has engendered, leishmaniasis could one day be eradicated from all villages in Bihar.

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