

## Kala Azar (Visceral Leishmaniasis)

Kala azar (Visceral Leishmaniasis) is a deadly disease caused by the parasitic protozoa *Leishmania donovani* and transmitted to humans by the bite of infected female sand fly, ***Phlebotomus argentipes***. The amastigote form of the parasite invades the Reticulo Endothelial system of humans. It lowers immunity, causes persistent fever, anemia, liver and spleen enlargement, and if left untreated, it kills. The vector thrives in cracks and crevices of mud plastered houses, poor housing conditions, heaps of cow dung, in rat burrows, in bushes and vegetations around the houses.

Diagnosis is done by clinical features of the disease in an endemic area confirmed by either demonstration of the parasite in the splenic aspirate or indirect tests. Presently the rk 39 test kit is widely used. Treatment previously was by antimony compounds; presently Miltefosine, Amphotericin B and its liposomal form are being used. Paramomycin is also being tested as a candidate drug.



### Historical Perspective

Texts from the Inca period in the 15th and 16th centuries, and then during the Spanish colonization, mention the risk run by seasonal agricultural workers who returned from the Andes with skin ulcers which, in those times were attributed to "**valley sickness**" or "**Andean sickness**". Later, disfigurements of the nose and mouth become known as "**white leprosy**" because of their strong resemblance to the lesions caused by leprosy. In the Old World, Indian physicians applied the Sanskrit term kala azar (meaning "**black fever**") to an ancient disease later defined as visceral leishmaniasis.

In 1901, Leishman identified certain organisms in smears taken from the spleen of a patient who had died from "**dum-dum fever**". At the time "Dum-dum", a town not far from Calcutta, was considered to be particularly unhealthy. The disease was characterized by general debility, irregular and repetitive bouts of fever, severe anemia, muscular atrophy and excessive swelling of the spleen. Initially, these organisms were considered to be trypanosomes, but in 1903 Captain Donovan described them as being new.

The link between these organisms and kala azar was eventually discovered by Major Ross, who named them *Leishmania donovani*. The *Leishmania* genus had been discovered.

## Problem Statement (Global)

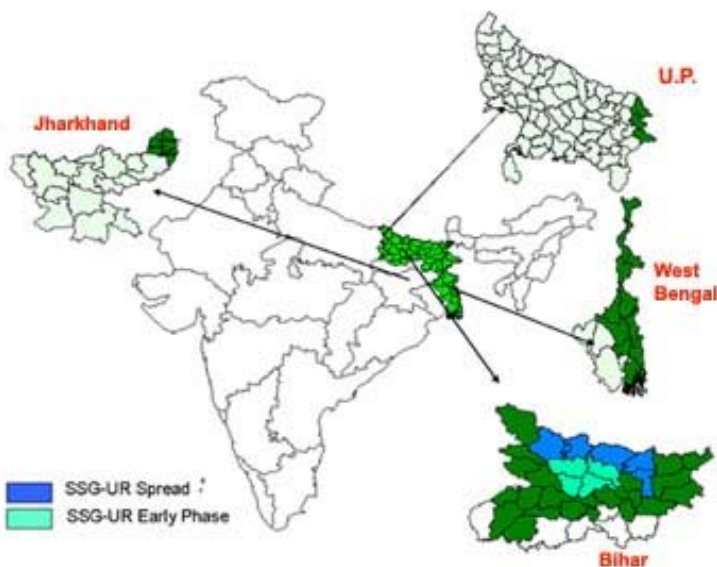
It is estimated that 350 million people in 88 countries are at the risk of developing the disease. About 500,000 people suffer from it.

## South East Asia Region

About 200 million people are estimated to be at risk from this disease. The estimated number of cases is about 100,000 distributed in India, Bangladesh and Nepal. However, it is felt by many authorities that the number of sufferers may be a few times that number.

## India

165 million people are estimated to be at risk. The reported number of cases is around 20,000 and number of deaths about 200 per year. Estimated number of cases is much higher. Bihar state is the worst affected with 33 districts endemic. It is also found in the neighboring states of West Bengal with ten districts affected, Jharkhand with five districts endemic and Uttar Pradesh with four.



## Kala-azar Control Efforts in India

- Efforts to control malaria in the sixties and seventies resulted in lowering the prevalence of kala azar as well.
- An organized centrally sponsored Control Program launched in endemic areas in 1990-91
- Government of India provided kala-azar medicines, insecticides and technical support and the State governments implemented the program through primary

health care system and district/zonal and State malaria control organizations and provided other costs involved in strategy implementation

- Program strategy included:
  - Vector control through IRS with DDT up to 6 feet height from the ground twice annually
  - Early Diagnosis and Complete treatment
  - Information Education Communication
  - Capacity Building

### **Memorandum of article signed for Kala azar**

The Health Ministers of three Member States of WHO's South-East Asia Region, India, Nepal and Bangladesh signed a Memorandum of Understanding pledging to collaborate to eliminate Visceral Leishmaniasis (Kala-azar) from their countries on 18 May 2005. In terms of the program it would mean reaching a prevalence of less than one case per ten thousand population at the sub district level in India, Upazila in Bangladesh and district level in Nepal by the year 2015.



In keeping with these initiatives WHO held a number of consultations at the Regional and national level and put together the framework in which the elimination target would be achieved.

The objectives are

#### **1. Impact Objective**

To reduce the annual incidence of kala-azar and PKDL to less than one per 10,000 population at district (or sub-district) level by the end of 2015 by:

- ❖ Reducing kala-azar, including in the vulnerable, poor and un reached populations in endemic areas;
- ❖ Reducing case-fatality rates from kala-azar;
- ❖ Reducing cases of PKDL to interrupt transmission of kala-azar, and
- ❖ Preventing the emergence of kala-azar/HIV/TB coinfections in endemic areas.

## **2. Process Objectives**

- ❖ To improve the effectiveness of program management with a focus on policy, planning and regulation;
- ❖ To enhance capacity-building at all levels in kala-azar-endemic districts;
- ❖ To establish effective disease and vector surveillance system for planning and response supported by reliable laboratory diagnosis;
- ❖ To ensure early diagnosis and complete case management of kala-azar;
- ❖ To undertake disease prevention and control by integrated vector management (IVM) through selective stratified indoor residual spray (IRS), insecticide treated nets (ITN) and environmental management with community participation and inter sectoral collaboration, and
- ❖ To conduct operational research on important elements of elimination activities.

## **Strategies**

The elimination program should ensure access to health care and prevention of Kala azar for people at risk with particular attention to the poorest and marginalized groups. The strategies will be implemented in four phases –preparatory phase, attack phase, consolidation phase and maintenance phase.

## **Major strategies are**

- ❖ Effective disease surveillance.
- ❖ Early diagnosis by dipstick and complete treatment.
- ❖ Effective vector control through Integrated Vector Management with a focus on indoor residual spray, insecticide treated nets and environmental management.
- ❖ Social mobilization of the population at risk.
- ❖ Clinical and operational research to support the elimination program.

## **Pilot Project in India**

The Indian National Vector Borne Disease Control Program (NVDCCP) has decided to launch a pilot project for Kala Azar with support from WHO in 2007. This will cover six endemic districts in Bihar, two in Jharkhand and two in West Bengal. For diagnosis rk 39 kits will be used. The treatment in the first line will be by the new oral drug, Miltefosine (dose 2.5 mg / kg body weight in two divided doses per day for 28 days) Amphotericin B has been kept in the second line of treatment. PKDL will also be treated in the program. The detailed guidelines of the project are being worked out at present.