

Editorial

Elimination of leishmaniasis (kala-azar) from the Indian subcontinent is technically feasible & operationally achievable

The global estimate for the incidence and prevalence of kala-azar cases per year is 0.5 and 2.5 million, respectively¹. More than 90 per cent of the world's cases are in India, Bangladesh, Nepal, Sudan and Brazil. The incidence of kala-azar in India is among the highest in the world². Further, *Leishmania*/HIV co-infection is on the rise and may pose a real diagnostic and therapeutic challenges^{3,4}.

VL or kala-azar has been one of the major health problems in the State of Bihar in India, for the past three decades or more. At present, 28 of 37 districts are endemic at different levels. Ninety per cent of all the cases in India are reported from Bihar State alone. VL is also being reported from several districts (neighboring Bihar) of the States of West Bengal and Uttar Pradesh in India. Bihar, being the second largest populated State in India, has reported as many as 200,000 deaths from kala-azar since 1977. In India, the calculated DALYs (disability-adjusted life years) lost due to kala-azar in 1990 were 6.8 million for men and 0.5 million for women⁵. Using official records, the burden of disease was estimated as 15 and 11 thousand in 2001 and 2002, respectively (unpublished data from Rajendra Memorial Research Institute of Medical Sciences, Patna).

The adjoining low land regions of Nepal-Bihar border are endemic zones for VL. During 1995-1997 in Nepal, about 1850 VL cases were reported annually corresponding to incidence rates of 2 to 8 cases per 10,000 populations in VL-endemic districts. Bangladesh reports current prevalence of 30,000 cases with the total population at risk being around 20 millions⁶. These passive facility-based surveillance data are considered to be gross underestimates⁶. The difficulty of controlling VL in the past in this region included lack of political will, non-availability of a reliable diagnostic tests and unresponsiveness to first line drug (antimonials) as well as inadequate vector control. The second line drug

amphotericin B is prohibitively costly and requires intravenous administration and hospitalization. Post kala-azar dermal leishmaniasis (PKDL) cases may act as potential reservoir of infection. There are no standard guidelines for treatment of PKDL cases. Current treatment involves prolonged courses of antimonials or amphotericin B. Soon, 8 and 12 wk regimen of miltefosine will be evaluated in the treatment of PKDL cases by 4 centres in Bihar including Rajendra Memorial Research Institute of Medical Sciences, Patna.

Since the disease is mostly confined to a limited area in the Indian subcontinent, it may be possible to control and even achieve elimination of the disease from the region. Reduction of incidence/prevalence of disease or infection as desired, as a result of targeted intervention, is 'control'. 'Elimination' may apply to disease or infection. The achievement of zero incidence in a defined geographic territory is elimination. Eradication applies to zero incidence of infection worldwide. The proposed strategy is to achieve zero incidence of *Leishmania donovani* in the kala-azar endemic territories in India, Bangladesh and Nepal. The disease affects the poorest of the poor and aggravates poverty and therefore, the elimination programme can be considered as a component of poverty alleviation strategies.

Scientific feasibility of the elimination strategy is based on the epidemiological vulnerability, and effectiveness and feasibility of intervention. Geographically, VL occurs in 88 countries around the world, of which 60 per cent are in well-defined areas of Bangladesh, India and Nepal. Two main eco-epidemiological entities have been documented across the world: zoonotic (ZVL), where dog, and anthroponotic (AVL), where untreated patients, are the sole sources of infection for the vector. These AVL foci are at the origin of the most severe and deadly epidemics. In the 1960s, during the malaria eradication

programme, due to the adoption of intensive vector control measures, VL was almost eliminated in this part of the world, illustrating the vulnerability of the transmission cycle. Based on geographical and epidemiological criteria, VL-endemic areas of Bangladesh, India and Nepal deserve foremost attention for a VL elimination programme. Past experience of all success stories of leishmaniasis elimination are from anthroponotic foci.

The control/elimination strategy for AVL is based on aggressive case finding, effective management and vector control measures for reduction of not only morbidity and mortality but also disease transmission. Recently, new tools have been made available for more cost-effective case management *viz.*, simple, reliable and inexpensive tests for field-level serological diagnosis (dipstick rk39)⁷, new oral drug (easy to administer at community-level) registered in India (Miltefosine)^{8,9} and long-lasting insecticide impregnated bed nets (LLN)⁶ which provide a more sustainable approach for vector control. Effective application of these tools is expected to substantially decrease the cases, reduce transmission and prevent epidemics. Thus, presently the feasibility of an elimination programme is potentially high.

A focused regional effort is urgently required to eliminate the disease from the Indian subcontinent. In 1991-1992, an enhanced effort by the Government of India combining widespread availability and easy accessibility of drugs (antimonials), and DDT spraying of houses, led to a 67.7 per cent reduction in morbidity and 73.3 per cent reduction in mortality by 1995. However, the strategic approach should include proper assessment of the disease burden, logistic requirements and financial implications along with scaling up of the existing facilities for case management (*e.g.*, large-scale drug distribution), vector control measures (insecticide spraying and environmental control), distribution and proper utilization of impregnated bed nets and strengthening of public sector (government health centres and district hospitals). Emphasis should be given on appropriate procurement and delivery systems, improved and intensified health education programmes, strengthening of human resources, innovative socio-economic development programmes at community level, regular monitoring and evaluation, research to strengthen all above components and strong public-private partnership.

An initiative by the Government of India towards elimination of kala-azar from the Indian subcontinent

(Bangladesh, India and Nepal) is gaining momentum. Recently in India, the National and State ministers of health expressed commitment to such an initiative and allocated funds. During an inter-country meeting held in October 2003, representatives of Bangladesh and Nepal confirmed their interest in joining the Indian effort. Donors and the WHO (SEARO) are also supporting the programme of Kala-azar elimination from the Indian subcontinent.

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