Elimination of VL in the Indian subcontinent – is it achievable?

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Leishmaniasis

350 million at risk worldwide (in 98 countries)
90% in a few countries (India, Sudan, Brazil, Bangladesh, Ethiopia).

Transmitted by the sandflies

- 2 types of leishmaniasis:
  - Visceral (VL): fatal without treatment
  - Cutaneous (CL): has a spectrum of presentations; typically with self-healing or chronic lesions on the skin.

- Symptoms of VL: prolonged fever, enlarged spleen & liver, substantial weight of loss, progressive anemia

- Treatments needs for VL: Oral, safe, effective, low-cost and short-course treatment
Map of the areas of VL
Decreasing incidence in India

- Launch vector control program
- Launch VL elimination initiative
- Target of VL elimination initiative

KA incidence rate per 100,000 popn per year

Year

DNDi
Drugs for Neglected Diseases initiative
Declining Trend in Bangladesh
Trends of VL cases

• Reported number of cases are declining in all three countries
• In India and Bangladesh there is not a systematic reduction but variable
• Reasons could be attributed to either vector control or drug effectivity or ruptures as both have influence the burden
Treatment Assessment

Is it the reason for trends

• SBV : the effectivity reduced by 30% in 1977, the dose was increased two cycles improved efficacy but again 1983 decreased to 86% effectivity

• Pentamidine was used from 1983 at 99% efficacy decreased to 70-75% in 1990s.

• Amphotericine B : 99% in 1993 and reduced to 93-94% 2011.
Treatment Assessments contd

- Miltefosine (MF): in 2002 was 95% and in 2010 reduced to 90.3%
- Liposomal Amphotericine B: Single (SDA) and multiple dose regimen at present above 97%
- Combination Therapy 8 to 10 days. 97% effective
- Miltefosine and Paramomycin
- Single dose Liposomal Amphotericine B and Miltefosine
History of VL Programs

• 1\textsuperscript{st} time National Malaria Eradication Program (NMEP) intensive dichlorodiphenyltrichloroethane (DDT) spraying between 1953 and 1964. The number of VL cases decreased from 60,000 to almost nil during 1955-56.

• 2\textsuperscript{nd} time "Kala-azar control program" during the 1977 outbreak. DDT spraying was done for 3 years.

• 3\textsuperscript{rd} time was during the 1991-92 outbreak "Kala-azar control program". Again discontinued after 1995

• Elimination program 2005
Memorandum of Understanding between Bangladesh, India and Nepal on the Elimination of Kala-azar, WHO/Geneva, 2005

• The objective of this programme is to reduce the incidence of VL below 1 case per 10,000 inhabitants per year by 2015 in endemic areas

• Current VL elimination strategies involve
  - early case detection,
  - effective treatment
  - vector control by indoor residual spraying
  - Other like Long lasting nets (LLIN)
Elimination Strategy

Four phases

• Preparatory phase of two years: to develop common tools to control
• Attack phase of five years: to control and reduce the burden of VL to less than 1/10000
• Consolidation phase of three years: maintain the control the burden
• Maintenance of two to three years
Support to programe

• TDR/WHO support: Phase I to V operational research studies on active case finding, case management, vector control, etc
Program Initiatives by Countries

• Deployment of oral Miltefosine for treatment in 2005 now newer treatments are in process implementation

• Improve the vector controls spraying by indoor spraying rather than fogging

• Nepal & Bangladesh changed from DDT to Synthetic pyrethroids for vector control

• Communication and other educational materials were developed according to guidelines
Program need to Strengthen

• Early diagnosis complete treatment,
  - Case surveillance/reporting through active and passive case detection
• Effective vector control
  - Need to be strengthened vector management with a focus on IRS, insecticide treated bed nets and environmental management
• Social mobilization and education of the population at risk
Challenges

• Predominantly driven by asymptotically infected hosts

• Cases of PKDL may appear years after infection, reservoir to initiate the next epidemic

• To prevent re-emergence of infection after local extinction in formerly endemic regions, low vector densities should be maintained

• Combined with active case detection in humans as well as effective treatment in controlled area
Treatment Challenges

Limitation of treatments

• Parenteral not easy to administer
• Requires training to administer & monitor safety
• Cost & logistic support

Post Elimination the challenge would be to maintain the effort with the current Treatments.

For maintenance of elimination easy to administer, safe oral treatment would be necessary for sustained efforts at ground level
Potential to Eliminate

• Depends on sustained efforts both at implementing & political level

• Sustained Efforts to continue after reaching elimination

• Parts of India have successfully eliminated VL like Tamilnadu so there is potential to replicate the model in the region
Thank You