Elimination programme for kala-azar in India and Bihar during the last century - ignoring the obvious.

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**Background**

Incidence of kala-azar in India during 1903, the year in which Leishman and Donovan described parasites of Leishmaniasis.

Bengal (now West Bengal and Bangladesh), Assam and Bihar were highly affected. Uttar Pradesh, Orissa & Tamil Nadu were sparsely affected.

**Fig - 1**

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After the era of trivalent antimonial, urea stibamine a pentavalent sb compound saved millions. The drug was very effective in Assam epidemic. Comparison of treated and untreated groups.

<table>
<thead>
<tr>
<th>Urea Stibamine treated group</th>
<th>Without urea stibamine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decline of epidemic started in same time in centres of intensive treatment, number of cases remained at lower level, Mortality greatly diminished</td>
<td>Decline of the epidemic started in same time. Number of case remained at higher level, Mortality was higher.</td>
</tr>
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<table>
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<tr>
<th>Acute cases</th>
<th>Chronic cases</th>
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<tbody>
<tr>
<td>Acute fulminating type during the peak of the epidemic responded quickly, dramatic response of fever, diminution in the size of the spleen and return to normal condition of health</td>
<td>Chronic type of case response to treatment more gradual. Required a larger dose of the drug. Greater number of refractory cases.</td>
</tr>
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</table>
The era of urea stibamine continued till 1930's and 40's and then the manufacturing of the drug was discontinued. From 1953 to 1964 was the era of vector control – treatment of residual cases of kala-azar & PKDL were ignored. Treatment of cases was done with sodium stibogluconate at a dose of 6 ml daily for 6-10 days. In 1970’s 30% of the patients were insensitive to the drug. Later the drug was found ineffective and highly toxic. In a recent survey 345 patients died during treatment with this drug.
Large number of cases of PKDL were reported in 1964. Certain pessimism was expressed over for the treatment of PKDL. Usually about $\frac{2}{3}$ of nodules and erythematous cases and half the cases with hypopigmented macules are completely cured and marked improvement is noted in about $\frac{2}{3}$ of the remaining case. In about $\frac{1}{6}$ of the total cases no or slight improvement is noted. Relapse of dermal leishmanoid after improvement is not very rare.

We changed the criteria of cure: 1 All lesions should disappear. All lesions disappeared with SAG in the beginning and later with amphotericin B. 3 to 4 interrupted courses of SAG and later 3 to 4 interrupted courses of amphotericin B were used. No case relapsed.
Useful drug for the use in epidemic.

- SAG ineffective and toxic - left.
- Amphotericin B - 20 days’ course - very effective and reduced the incidence of PKDL also.
- Ambisome - expensive - has not been used extensively.
- Amphomul – it is being evaluated again.
- Miltefosine – Sort supply, not suitable for an elimination programme unless supply is insured.
- Paromomycin - Under going phase IV trial.
- Plant Medicine in the process of development.
We devised an improved camp strategy for kala-azar elimination in a village Goanpura near Patna in which identification of kala-azar cases was done in a camp by testing all cases of fever with rk-39, transferring those patients to our hospital at Patna, treating all of them with 1mg/kg body wt. of amphotericin B for 20 days. And supplementing the treatment programme with supervised DDT spray programme. The kala-azar was eliminated from that village.
Revamping the kala-azar elimination programme.

**Fig-2**
A Schematic representation of kala-azar elimination programme.

<table>
<thead>
<tr>
<th>Villages: Site of occurrence and action</th>
<th>Village level worker Sends weekly written report to PHC office (does not exist)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A designated officer for kala-azar elimination (does not exist)</td>
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</table>

**Primary Health Centre (PHC)**

- Can verify the site for confirmation of the disease status
- Plan action for treatment & spray
- Inform the district authority

<table>
<thead>
<tr>
<th>Can verify the site for confirmation of the disease status</th>
<th>Distric information centre under designated medical officer. (does not exist)</th>
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</thead>
<tbody>
<tr>
<td>Plan action for treatment &amp; spray</td>
<td></td>
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<tr>
<td>Inform the district authority</td>
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**State kala-azar office, Patna**

- Enquire about the status & takes action about arrangement for treatment, spray, talks to Rural development Ministry for housing etc. Creation of a revolving fund to fill up the gap between central supplies and requirement.

<table>
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<tr>
<th>State information centre</th>
<th>Monthly information to centre</th>
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</table>

**Kala-azar Control Office, Delhi**

- Central information centre
- Review monthly
- Inform monthly

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<tr>
<th>Monthly visit to Bihar Occasional visit of site, PHC or district to assess their functioning</th>
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<tr>
<td>Monthly review Occasional review at all levels.</td>
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**Ministry of Health**

- 3 monthly review
- No shortages of drugs or diagnostics assured.
- Talk to Ministry of Rural development for Housing, and other bodies for improving the programme.
Determination to eliminate kala-azar should be there.

Adequate supply of amphotericin B & facilities for use in Primary Health Centres ensured.

Training of doctors and technicians.

Supervised DDT spray for vector control and efficacy of the drug on vector, optimal spray of the drug ensured.

At least a 10 yrs programme should be undertaken.
Thank you.