Intralesional sodium stibogluconate – an effective, safe therapy for localised cutaneous leishmaniasis

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Abstract

Sodium stibogluconate is a widely used leishmanicide. It is a pentavalent antimony compound which can be given intralesionaly as well as intramuscularly for cutaneous leishmaniasis. It is safe and effective in preventing disfiguring scar formation of untreated cutaneous leishmaniasis.

A prospective study over 18 months period was carried out to evaluate clinical response to intralesional sodium stibogluconate in patients with localised cutaneous leishmaniasis since 1st January 2006 in Dermatology Unit, Teaching Hospital, Karapitiya. 107 patients with localised cutaneous leishmaniasis were treated with intralesional sodium stibogluconate on D_1, D_3, D_{10} and D_{30}. Size of the lesion and side effects were monitored during therapy and followed up for 1 month after therapy. We achieved 97% of overall response rate. Medium duration taken to achieve clinical clearance was 35 days commonly with 4 doses. None of the patients experienced serious side effects of the therapy during study period. Intralesional sodium stibogluconate therapy is safe and effective for localised cutaneous leishmaniasis.

Introduction

Cutaneous leishmaniasis (CL) is an important curable zoonotic disease. It is caused by protozoal species. The causative organism in Sri Lanka is *Leishmania donovani*.

It is transmitted through insect vector; infected female sand fly (phlebotomus) found commonly in jungle areas. The infection occurs throughout the world and it is endemic in tropical and sub tropical countries[1,2].

Leishmaniasis affects skin, mucous membranes, and internal viscera. Untreated cutaneous lesions can result in disfiguring scar formation (Figure 1). All lesions tend to occur on exposed parts. Most CL lesions heal spontaneously, but their duration cannot be predicted in an individual case. The sequence of nodule, crusting, ulceration and healing with scar formation is common to all the self healing sores[1]. Most self healing lesions take few years for clinical clearance[1,2]. Because of the scaring and long duration taken with self healing, treatment of CL is recommended in several clinical situations such as early lesions, multiple lesions, lesions involving cosmetically sensitive sites, mucosal lesions, disseminated lesions and those with significant immunosuppressions.

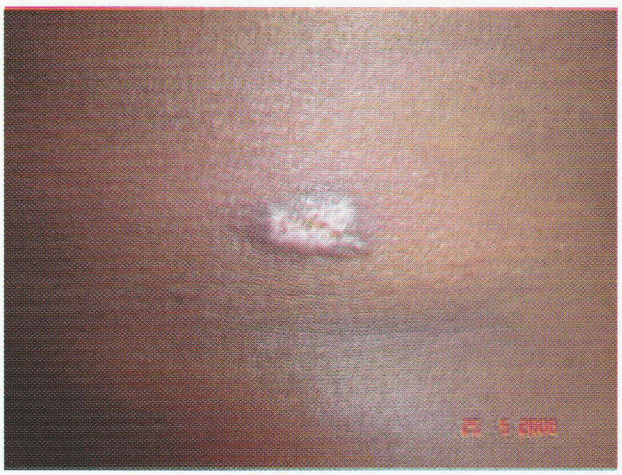

Figure 1

Treatment modalities include systemic as well as local treatment. Available systemic treatments are antimony compounds (eg:- sodium stibogluconate), pentamidine imidazole compounds (eg. ketoconazole) and amphotericine B. Local therapies useful for localized limited CL are cryotherapy, curettage and intra lesional infiltration of sodium stibogluconate. Paromycin cream and imidazole compounds have been used topically in localized CL with variable success. Pentavalent antimony compounds still remain the mainstay of treatment in CL[1,3,4,5].

Sodium stibogluconate (SS) is a pentavalent antimony compound which inhibits glucose uptake by promastigotes and decreases DNA and RNA protein synthesis. It can be given intralesionaly or intramuscularly in localized CL[3]. Intralesional SS targets the focus of infection. There are rare recognized side effects of SS such as myalgia, joint stiffness, malaise, anorexia bradycardia, prolonged QT interval, inversion of T wave in ECG, hepatotoxicity, haemolytic anaemia, nephrotoxicity, pancreatitis, and anaphylaxis

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mainly with intramuscular route administration. There are few contraindications for the therapy such as pregnancy, and advanced hepatic, renal and cardiac disease.

Methods

All the patient who presented to Dermatology Unit, Teaching Hospital, Karapitiya both indoor and out patients during 18 months from January 2006 clinically suggestive of CL were interviewed. All who were diagnosed clinically and confirmed histologically only were included in the study. SS was given intralesionaly 1 ml/1 cm diameter of lesion on D_1, D_3, D_{10} and D_{30}. Lesion size and side effects were monitored on D_1, D_3, D_{10}, D_{30} and D_{40}. We analysed clinical pattern, area distribution, and clinical response to SS. Efficacy of SS was analysed statistically with success rate (SR).

$$(SR) = \frac{n1}{n} \times 100, \quad SE(P) = \frac{\sqrt{P(100 - P)}}{n}$$

and 95% confidence interval (CI) = 1.96 x SE.

SR and 95% CI were calculated for lesion clearance with each dose.

Results and discussion

There were 107 (0.3%) patients with CL (36–Female, 71–Male) out of 34833 patients seen in Dermatology Unit. 83.3% of patients had lesions on exposed sites and 16.6% had on covered sites. Plaque type was the commonest clinical pattern found among 71.5% of patients. 63.6% of them were ulcerated (Figure 2).

Most of our patients were commonly from Ambalanthota, Dickwella, Beliatta and Hakmana in deep south region (Chart 1).

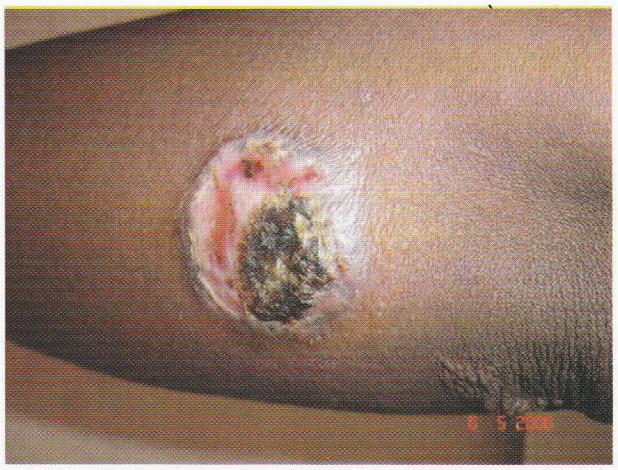

Figure 2

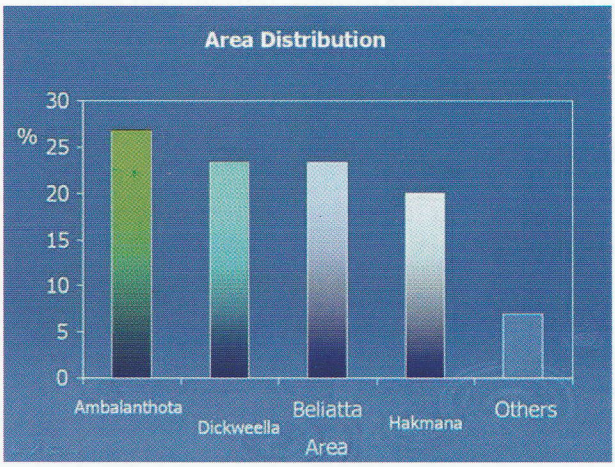

Chart 1

Some of our patients achieved clinical clearance even with first dose (D1) of intralesional SS. Table 1 shows success rate for number of patients who achieved clinical clearance with each dose of SS and it's relevant 95% CI (Table 1).

Table 1

Dose	*No. of patients with lesion cleared*	*Success rate (P)*	*95% confidence interval CI*
D1 (1 dose)	7	6.50%	4.75
D1 , D3 (2 doses)	11	10.20%	5.75
D1, D3 , D10 (3 doses)	27	25.23%	8.21
D1, D3 , D10, D30 (4 doses)	43	40.18%	9.28
> 4 doses	16	14.95%	6.75

Majority of our patients achieved clinical clearance with 4 doses given on D_1, D_3, D_{10}, and D_{30}. We achieved overall response rate of 97% with the therapy. Median duration taken to achieve clinical clearance was 35 days.

By giving high dose of SS intralesionaly cures the localised CL lesion within short period like 2-3 weeks. Therefore, it is effective and without any serious side effects among our patients. Only reported side effects were transient local erythema and swelling observed in 2 of our patients who had lesions on face. Only 16 patients needed more than 4 doses for clinical clearance. For those patients; we combined cryotherapy 2-4 weekly with additional monthly doses of SS intralesionaly until lesions cleared.

In conclusion, intralesional SS therapy is safe and effective for localised CL.

Acknowledgement

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