INTRODUCTION
Cutaneous larva migrans (CLM), commonly known as creeping eruption is caused by the migration of animal hookworm larvae in the human skin. Common species causing the condition include Ancylostoma (A.) braziliense,1 A. caninum, A. ceylanicum,Uncinaria stenocephala and Bunostomum phlebotomum.2 Patients present with linear serpiginous track moving forward in the skin, associated with intense itching and a history of exposure.3 Bacterial super infection occurs as a result of scratching. Usually affects people from poor socio-economic status and can cause considerable morbidity.

Adult hookworm resides in the feline intestine and secretes the ova in faeces. The ova then hatch into the larva under hot and humid climate thus infesting soil and sands on beaches etc. thus affecting humans who come in contact with the infected soil.4 Lesions commonly occur on foot, arm and trunk.

The geographical location of Karachi is south of Pakistan along the coast of Arabian Sea. The hot and humid climate of the city makes it a perfect spot to spread this hookworm infection. Treatment is based on oral drugs (Albendazole or ivermectin) or the topical application of Thiabendazole. All of these modalities have been used with variable results. It is sometimes necessary to use a combination of both topical and systemic remedy.

The objective of this study was to determine the efficacy of combination treatment of Albendazole along with liquid nitrogen in cutaneous larva migrans.

METHODOLOGY
It was a quasi-experimental study carried out at Department of Dermatology, Abbasi Shaheed Hospital, and in the outpatient clinics at the Aga Khan Hospital, Karachi during a period of 2 years starting from December 2008 till December 2010. Patients clinically diagnosed as suffering from cutaneous larva migrans were recruited in the study after taking verbal consent and were explained about the study. All patients with the disease were included in the study irrespective of age and sex. Those who received any kind of treatment in the past or who still had persistent hookworm infection were excluded from the study. These patients were divided into two groups comprising of 9 members into group-A and B respectively. Group-A was given oral Albendazole 400 mg/day along with topical steroid and oral Cetrizine whereas group-B was also given cryotherapy with a freeze time of 30 – 60 seconds along with the above mentioned regimen. Clinical response
was observed by the same physician during weekly follow-up of the patients. Efficacy was categorized according to the time taken for the symptoms and lesions to settle as under: excellent disappearance of all baseline signs and symptoms relevant to the lesions; good (remission but without complete disappearance of all baseline signs and symptoms relevant to the lesions) and poor (no remission of baseline signs and symptoms or recurrence of original lesions despite therapy). Patients were also inquired about any side effects. Results were described as mean, range and percentage values.

RESULTS
Out of 18 patients who participated in the study, 13 were males and 5 were females. Their ages ranged from 6 to 56 years with mean of and majority were students who played sports in the evening in gardens and grounds. Rest were self-employed.

The duration of illness, commonly affected sites and notable side effects were seen in Table I. Duration of illness in group-A was 7 – 10 years whereas it was 6 – 7 years in group-B. Most commonly affected sites were limbs and trunks equally observed in both groups. Commonly noted side effects were blistering (2%) and transient pigmentation (2%), both in group.

Only 2 out of the 9 patients (22%) were treated with Albendazole alone whereas 9 out of 9 patients (100%) were treated successfully with a combination of Albendazole and cryotherapy.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of illness</td>
<td>7 - 10 years</td>
<td>6 - 7 years</td>
</tr>
<tr>
<td>Sites affected</td>
<td>Limbs, Trunks</td>
<td>Limbs, Trunks</td>
</tr>
<tr>
<td>Side effects</td>
<td>Nil</td>
<td>4 (49%)</td>
</tr>
<tr>
<td>Blistering</td>
<td>Nil</td>
<td>2 (22%)</td>
</tr>
<tr>
<td>Pigmentation</td>
<td>Nil</td>
<td>2 (22%)</td>
</tr>
</tbody>
</table>

DISCUSSION
The study unveiled many aspects of the impact of cutaneous larva migrans on the patients coming to the outpatient clinics. Although it is a self-limiting disease but considerable morbidity necessitates treatment. According to the guidelines published by the Hospital of Tropical Diseases, three different modalities are initiated for treatment, first being 10% Thiabendazole cream, second being oral Albendazole 400 mg/day with or without cryotherapy and the third being a single dose of ivermectin.5 Since oral or topical Thiabendazole is not available in Pakistan, the physicians are left with choosing between oral Albendazole, cryotherapy and ivermectin. In the present study, it was found that 2 out of 9 patients (22%) who were treated with oral Albendazole alone responded to treatment whereas 7 patients (77%) needed cryotherapy as an additional treatment and were cured after single session of cryotherapy.6 In group-B all 9 patients (100%) were cured with the combined therapy suggesting that both the remedies act synergistically. This was in contrast to another study which yielded unsuccessful results with cryotherapy alone, in 6 patients and 2 among them also reported blisters.7 In another study, 7 patients were treated with cryotherapy alone and did not report any cure.6 The reason behind this could be ineffective technique. The better result in this study may be due to the use of appropriate long hook with pin point spray of liquid nitrogen along the whole thread and longer freeze cycle which minimized the post-inflammatory pigmentation.

Albendazole has been successfully used for the treatment of cutaneous larva migrans with limited side effects.8-11 Single dose of 400 mg has been found effective.12,13 Two recent studies of 1114 and 24 patients who were treated with Albendazole 400 mg daily for 7 days reported successful cure and no recurrences and side effects.14,15 The limitations of oral drugs is that they have been proved teratogenic in pregnancy.16,17 In another study, oral ivermectin was found to be more effective than oral Albendazole.18

The study highlighted the importance of combination therapy in treating cutaneous larva migrans with promising results. A major limitation of the study was the small sample size as these were the only encountered patients during the study period. This combined therapy, used in this study was not frequently employed in other studies carried out for the same purpose which adds a new approach in the local set-up.

CONCLUSION
Combination treatment of oral Albendazole and liquid nitrogen is efficacious in treating cutaneous larva migrans.

REFERENCES


