

# THE EFFICACY OF LOCAL INFILTRATION OF TRIAMCINOLONE ACETONIDE WITH LIGNOCAINE COMPARED WITH LIGNOCAINE ALONE IN THE TREATMENT OF POSTHERPETIC NEURALGIA

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## ABSTRACT

**Objective:** To assess the efficacy of local infiltration of corticosteroid with lignocaine compared to lignocaine alone in the treatment of postherpetic neuralgia.

**Design:** A randomized clinical trial.

**Place and Duration of Study:** The Skin Department, Military Hospital, Rawalpindi from September 2002 to March 2003.

**Patients and Methods:** Sixty patients were selected for the study. They were randomly assigned to two groups. Group-I received injection triamcinolone acetonide with lignocaine and group-II was given injection lignocaine alone. Three injections were given to each patient at fortnightly interval and pain relief was assessed by visual analogue scale at 6 and 12 weeks following the first injection.

**Results:** Follow-up at 6 weeks showed complete pain relief in 63.3% (n=19) patients of group-I in comparison to 16.6% (n=5) of group-II. Chi-square value was 13.3 (p<0.001). At 12 weeks follow-up group-I showed further improvement with complete pain relief in 83.3% (n=25) whereas group-II showed diminishing response with cure rates falling to 6.6% (n=2). Chi-square value was 35.6 (p<0.001).

**Conclusion:** Locally infiltrated injection triamcinolone acetonide with lignocaine was significantly more effective than injection lignocaine alone in the treatment of postherpetic neuralgia both at 6 and 12 weeks follow-up.

**KEY WORDS:** Herpes zoster. Postherpetic neuralgia. Intralesional steroids. Intralesional lignocaine.

## INTRODUCTION

Intense pain in the involved dermatome precedes the appearance of the herpes zoster rash in more than 90% of cases.<sup>1</sup> The patients mostly experience no symptoms beyond the duration of the illness. Unfortunately, postherpetic neuralgia (PHN) is the most common complication which affects 10-15% of all patients with zoster and at least 50% of patients older than 60 years of age.

Postherpetic neuralgia due to its agonizing nature requires immediate and effective treatment. Various therapeutic modalities including antiviral agents<sup>1</sup>, analgesics, transcutaneous nerve stimulants and acupuncture<sup>1</sup>, antidepressants<sup>2</sup>, anticonvulsants and topical capsaicin<sup>3</sup> etc. have been used with only partial and transient relief. Corticosteroids when used by local infiltration either alone or with local anesthetics in the affected areas have given better results in the past. They are known to act by their anti-inflammatory effect. Their early administration in the healed lesions of herpes zoster prevent scarring of skin and peripheral nerves, thus reducing the chances of PHN.<sup>4,5</sup>

The objective of this study was to assess the efficacy of corticosteroid with lignocaine and compare this with lignocaine alone by local infiltration in the treatment of

postherpetic neuralgia.

## PATIENTS AND METHODS

The study was a randomized, single blinded, clinical trial with twelve weeks follow-up period. It was carried out from 1st September 2002 to 31st March 2003 at the Skin Centre of Military Hospital (MH), Rawalpindi. The study included the patients of both genders between 40-80 years of age. Persistence of pain for more than one month after the onset of herpes zoster was the most important inclusion criterion. After a detailed history, a thorough clinical examination, which included the blood pressure measurement, was done. All these patients were subjected to blood sugar, urea and creatinine examination and X-ray chest PA-view. The study excluded the patients who had any of the above investigations in the abnormal range and those with a history of recent intake of systemic steroids, antidepressants or antipsychotic drugs. Patients with a history of diabetes, hypertension, glaucoma, or a known hypersensitivity to lignocaine were also excluded.

These patients were randomly assigned to group- II or I. They were called on fortnightly basis. The affected dermatome was selected, and the scarred areas were marked. A 50 ml syringe with a 27 gauge needle was used for the injections and the medicines were injected intralesionally. Patients in group-I received a mixture of 1 ml of 40 mg/ml of injection triamcinolone acetonide with 5 ml of 2% lignocaine in 44ml of distilled water (a total of 0.8 mg/ml of triamcinolone acetonide) for local infiltration in postherpetic scars. Patients of group-II received the same combination, but without

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steroid. A total of three injections were given in each case at fortnightly intervals. Pain relief assessment was done at 6 weeks and 12 weeks follow-up following the first injection. This was done with the help of visual analogue scale (VAS)<sup>6</sup> where the patient was asked to grade his pain by marking any point on a 10 cms straight line marked from 0-10. Zero was no pain whereas 10 was extreme unbearable pain hampering the daily routine work or sleep. More than 50% pain relief on VAS or performance of daily routine work was taken as a good response, whereas less than 50% pain relief on VAS, impaired sleep or disturbed daily routine work was taken as poor response.

## RESULTS

A total of 60 patients were included in the study. Out of these, 56 were males and only 4 were females. The age ranged from 40 to 80 years with mean age of 61.25 ± 11.32 years. All 60 patients who were selected for the study completed their 12 weeks follow-up. The two groups were well-matched. Mean age of group-I was 61.06 ± 11.43 years and of group-II was 61.43 ± 11.41 years.

After 6 weeks of the first injection, good response was obtained in 63.3% (n=19) patients of group-I, in comparison to 16.7% (n=5) in group-II. Group-I showed further improvement at 12 weeks follow-up, when 83.3% (n=25) patients were completely cured. On the contrary group-II displayed diminishing responses when assessed at 12 weeks with the cure rates of only 6.6% (n=2). Overall 16.7% (n=5) patients of group-I showed poor response as compared to 93.3% (n=28) in group-II at 12 weeks follow-up (Table I). The failure rate in the patients of group-I was high in the elderly patients (60-80 years) and in those patients who were suffering from PHN since long (9 months-1 year). Eight patients of group-I

**Table I:** Pain relief response rate in group I and II at 6 and 12 weeks of follow-up.

Pain relief response rate	Percentage in group I (n=30) at 6 weeks	Percentage in group II (n=30) at 6 weeks	Percentage of group I (n=30) at 6 weeks	Percentage of group II (n=30) at 6 weeks
Good	63.3%(19)	16.7%(5)	83.3%(25)	6.6%(2)
Unsatisfactory	36.7%(11)	83.3%(25)	16.7%(5)	93.3%(28)

developed some skin atrophy locally; however, no side effect was noted in group-II.

To test the statistical significance of the results, Chi-square test was applied at the results of the two groups both at 6 and 12 weeks of follow-up. At 6 weeks the  $\chi^2$  value is 13.3, which lies beyond 10.827 at 1-degree freedom. Hence  $p < 0.001$ . This shows that the patients of group-I responded significantly well to the treatment as compared to those who were in group-II. At 12 weeks the  $\chi^2$  value is 35.6, which lies much beyond 10.027 at 1-degree of freedom. Hence again the  $p < 0.001$ . Therefore, the effect of treatment in group-I was statistically much superior to group-II both at 6 and 12 weeks of follow-up visits.

## DISCUSSION

Pain experienced in PHN is of two main types. It may either be a continuous burning pain with hyperaesthesia or spasmodic shooting pain. However, a pruritic crawling

paraesthesia may also occur. Allodynia, the pain caused by normally innocuous stimuli is often the most distressing symptom in 90% of people with postherpetic neuralgia.<sup>2</sup> The postherpetic neuralgia varies in intensity from a mere inconvenience to a profoundly disabling symptom.

No single treatment of PHN is consistently effective, but the duration and severity of PHN can be effectively reduced by different treatment modalities.<sup>3</sup> Various antiviral agents<sup>7,8</sup>, analgesics<sup>1,2</sup>, antidepressants<sup>9</sup>, anticonvulsants<sup>10</sup> topical capsaicin<sup>7</sup>, peppermint oil<sup>11</sup>, antipsychotic therapy<sup>9</sup>, nerve block<sup>12</sup>, transcutaneous nerve stimulants (TCNS) and acupuncture have been tried alone and in combination with variable success.<sup>3</sup> There are many anecdotal reports of the efficacy of topically applied local anesthetic mixtures<sup>13</sup> and locally infiltrated local anesthetics in the skin, peripheral nerves, or paravertebral or epidural spaces in patients with postherpetic neuralgia with only transient relief.<sup>14</sup>

There are a few published reports, which describe the successful use of intralesional steroids in postherpetic neuralgia.<sup>15-19</sup> Epstein in 1976 published his report of 111 patients of herpes zoster and 88 patients of PHN treated effectively with intradermal triamcinolone in saline with minimal side effects.<sup>5</sup> He continued his work and reported an 82% success rate with the same combination.<sup>15</sup> Later lidocaine and epinephrine were added to this combination and the results were competitive.<sup>4</sup> A combination of intralesional steroids with injection lignocaine was used with reasonable success in Jaipur, India<sup>16</sup> and in Multan, Pakistan.<sup>17</sup>

In our study the combination of intralesional triamcinolone and lignocaine was able to cure 83.3% patients at 12 weeks after the first injection. The results of our study were in concurrence with the Jaipur study, which reported a success rate of 85% with intralesional dexamethasone in combination with local anaesthetic at 12 weeks, and 96% at 18 weeks of follow-up.<sup>16</sup> In the Multan study the response rate was slightly less. In this study 60.2% patients were fully relieved of pain at 12 weeks and 82% at 18 weeks of follow-up.<sup>17</sup>

As far as the side effects of treatment were concerned, 8 patients (26%) belonging to group-I developed some localized atrophy at the injection site in comparison to no such reports in previous two studies. There were, however, reports of giddiness and sweating in some patients of the previous two similar studies, which was possibly an early side effect of local anesthetics. The difference in side effects might possibly be explained by the different types and dosage of steroids used. Fortnightly use of intralesional steroids might have contributed to the increased incidence of local side effects in our steroid group, whereas in Jaipur and Multan studies the topical side effects were not noticed because the steroid mixture were administered at 6 weekly intervals. As far as the side effects of local anesthetics were concerned, use of significantly lower concentration of lignocaine avoided any side effects in our study, which were seen in some patients of both the previous studies.

Comparison of the results of the two groups in the study clearly demonstrated an edge of triamcinolone acetamide with lignocaine (group-I) over lignocaine alone (group-II). The poor response to the treatment in group-II was similar to many previous studies, which used lignocaine, prilocaine and mepivacaine for local or intravenous injection.<sup>3</sup> However, a

higher concentration of the local anesthetic may be used for better results but this may increase the risk of side effects.

Lastly, the failure rates in both the groups in this study showed an upward trend in patients of older age and in those suffering from the disease for more than 9 months. These findings were not highlighted in any of the previous studies

## CONCLUSION

The combination of triamcinolone acetonide and lignocaine, when used for local infiltration is highly effective in the treatment of postherpetic neuralgia, as compared with injection lignocaine alone. It is suggested that long-term follow-up studies may be conducted with different corticosteroids alone or in combination with local anesthetics to further assess the efficacy of this type of treatment in postherpetic neuralgia.

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