Comparison between the Efficacy of Intra-Lesional Triamcinolone and Combination of Triamcinolone With 5-Fluorouracil in the Treatment of Keloid and Hypertrophic Scars

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ABSTRACT

Aim: To compare the efficacy of intra-lesional triamcinolone combined with 5-fluorouracil versus triamcinolone alone in the treatment of keloids and hypertrophic scars

Methods: This randomized controlled trial was conducted at Department of Plastic Surgery & Burn Unit, Sheikh Zayed Hospital Rahim Yar Khan from May 2015 to November 2015. Total 62 patients with keloid or hypertrophic scar measuring >1 cm in size, either male or female having age 15-60 years were selected for the study.

Results: The mean age of patients in group A was 31.71±8.13 years and in group B was 32.01±7.87 years. Out of 62 patients, 61.29% were females and 38.71% were males with male to female ratio of 1.58:1. Efficacy of Group A (intra-lesional triamcinolone combined with 5-fluorouracil) was 64.52% while in Group B (intra-lesional triamcinolone alone) was 29.03% with p-value = 0.005 which is statistically significant.

Conclusion: This study concluded that intra-lesional triamcinolone combined with 5-fluorouracil is better and more efficacious than intra-lesional triamcinolone alone in the treatment of keloids and hypertrophic scars.

Keywords: Corticosteroid, 5-fluorouracil, combination therapy, reduction in size, skin atrophy.

INTRODUCTION

Keloids also called benign fibro-proliferative scars as it grows beyond the confines of original wound and invades surrounding skin. Keloids do not regress and tends to reoccur after excision1. On the other hand, hypertrophic scars are erythematous raised lesions that does not expand beyond the boundaries of injury and it may regress spontaneously2.

The incidence of keloids formation ranges from 4.5% to 16% more commonly in darker-skinned people3. Many factors like genetic and environmental seems to be involved in keloids formation but exact etiology is not known. Main cause of development of keloids and hypertrophic scars is trauma to skin which may be physical and pathological4-5.

There is no universally accepted treatment resulting in permanent ablation of these scars6. The high recurrence rate has initiated a wide variety of treatments, such as, compression therapy, intralesional injections of corticosteroid, 5-fluorouracil, methotrexate, bleomycin, radiotherapy, cryosurgery, laser therapy, tamoxifen, and tacrolimus7-8.

Due to unsatisfactory results with individual therapy of the above mentioned modalities, combination of two therapies have been used and found to be more effective. Intra-lesional steroid injections have been the mainstay of keloid & hypertrophic scars treatment for a long time due to its tolerability and effectiveness in reducing the symptoms7. Intra-lesional steroid used in combination with 5-Fluorouracil has also found a place in the treatment of keloids and hypertrophic scars and is found to be more acceptable to patients due to the faster results achieved in comparison to intralesional steroid alone9.

The rationale of this study was to compare the efficacy of intra-lesional triamcinolone combined with 5-fluorouracil versus triamcinolone alone in the treatment of keloids and hypertrophic scars in local population. As intra-lesional triamcinolone alone is routinely used for these particular patients so, the results of this study would help us to evaluate its efficacy when used in combination with 5-fluorouracil and made some practical recommendations in our routine practice guidelines for treating the keloids and hypertrophic scars.

MATERIAL AND METHODS

This randomized controlled trial was conducted at Department of Plastic Surgery & Burn Unit, Sheikh Zayed Hospital Rahim Yar Khan from May 2015 to November 2015. Total 62 patients with keloid or hypertrophic scar measuring >1 cm in size, either
male or female having age 15-60 years were selected for the study. Patients with chronic renal or liver diseases, patient taking treatment for the keloids from last 3 months and pregnant/lactating women or those planning for pregnancy were excluded from the study.

Keloid is defined as: overgrowth of dense fibrous tissue that was usually developed after healing of a skin injury and was extended beyond the borders of the original wound was deemed as positive.

Hypertrophic scars are defined as: erythematous, pruritic, raised fibrous lesions that typically was not expanded beyond the boundaries of the initial injury was deemed as positive. Permission was taken from the institutional review committee before commencing the study. All the selected patients were randomly divided into two groups i.e., Group A and Group B.

Group A patients were given intralesional triamcinolone combined with 5-fluorouracil while Group B patients were given intra-lesional triamcinolone alone. In all patients, injection was given by the same Plastic Surgeon.

Group A were treated once weekly with intralesional injection of triamcinolone 4 mg (0.1 ml of 40 mg/ml TAC) mixed with 5-fluorouracil 45 mg (0.9 ml of 50 mg/ml 5-FU) for a total of 8 sessions. Group B were treated with once weekly intralesional TAC 10mg (0.25ml of 40mg/ml TAC diluted with 0.75ml injectable normal saline) for a total of 8 sessions. In all patients, the solution was injected in the body of scar by using a 1cc syringe with premounted 27G needle by one surgeon. All patients were followed till 4 weeks after end of treatment and efficacy was noted as follows: Efficacy was deemed as yes if there was more than 50% reduction in initial keloid or hypertrophic scars in terms of observer scar assessment (by measuring size of the scar measured by a scale) and absence of all complications i.e., skin atrophy (thinning of the skin over the scar area), hypopigmentation (lightening of skin complexion), telangiectasias (dilated superficial blood vessels) and skin ulceration (discontinuity of the skin), 4 weeks after the end of treatment. Efficacy was deemed as no if there was < 50% reduction in initial keloid or hypertrophic scars in terms of observer scar assessment (by measuring size of the scar measured by a scale) or presence of any of the following complications i.e. skin atrophy (thinning of the skin over the scar area), hypopigmentation (lightening of skin complexion), telangiectasias (dilated superficial blood vessels) and skin ulceration (discontinuity of the skin), 4 weeks after the end of treatment. All the data was entered on pre-designed proforma along with demographic profile of the patients.

Statistical analysis was performed using SPSS version 16. Results were presented as mean and standard deviation for quantitative variables. Frequency and percentage was calculated for qualitative variables. P value ≤0.05 was considered as significant.

RESULTS

Age range in this study was from 15-60 years with mean age of 31.76±8.09 years. The mean age of patients in group A was 31.71±8.13 years and in group B was 32.01±7.87 years. Efficacy (> 50% reduction in initial keloid or hypertrophic scars and absence of all complications after the end of 4 weeks treatment) of Group A (intra-lesional triamcinolone combined with 5-fluorouracil) was 20(64.52%) while in Group B (intra-lesional triamcinolone alone) was 09 (29.03%) as shown in Table II (p-value=0.005). Comparison between efficacy of both groups according to age groups has shown in Table 2 which showed significant difference of efficacy between both groups among 15-30 years of age. Table 3 has shown comparison between efficacy of both groups according to gender and significant difference was found among male patients but no significant difference among male patients. Stratification of type of scar with respect to efficacy has shown in Table 4.

Table 1: Comparison of efficacy between both Groups.

<table>
<thead>
<tr>
<th>Study group</th>
<th>Efficacy</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>A</td>
<td>20(64.52%)</td>
<td>11(35.48%)</td>
</tr>
<tr>
<td>B</td>
<td>9(29.03%)</td>
<td>22(70.97%)</td>
</tr>
</tbody>
</table>

P value is 0.005 which is statistically significant

Table 2: Comparison between efficacy of both groups according to age.

<table>
<thead>
<tr>
<th>Age</th>
<th>Group A (n=31)</th>
<th>Group B (n=31)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Efficacy</td>
<td>Efficacy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>15-30</td>
<td>11(68.75%)</td>
<td>05(31.25%)</td>
<td>05(33.33%)</td>
</tr>
<tr>
<td>31-45</td>
<td>06(60.0%)</td>
<td>04(40.0%)</td>
<td>03(30.0%)</td>
</tr>
<tr>
<td>46-60</td>
<td>03(60.0%)</td>
<td>02(40.0%)</td>
<td>01(20.0%)</td>
</tr>
</tbody>
</table>
DISCUSSION

Main treatment of keloids is pharmacological therapy in combination of other therapies10. Out of pharmacological therapies steroid injection is most commonly used as intralesional injections. Injection triamcinolone is used intralesionally both for hypertrophic scar and keloids causing flattening, fading and decrease in symptoms like itching. The dose of injection can vary from 10 to 120 mg depending on size of scars11.

In our study, the mean age of patients in group A was 31.71±8.13 years and in group B was 32.01±7.87 years with majority of the patients 31 (52.0%) were between 15 to 30 years of age. Onset occurs most commonly in individuals aged 10-30 years. Keloids occur less frequently at the extremes of age.12 Also in our study, out of 62 patients, 38 (61.29%) were females and 24 (38.71%) were males with male to female ratio of 1.58:1. Similar findings were also observed in many previous studies that scars occur commonly between 2nd and 3rd decade of life with male predominance3,6,7.

In our study, Efficacy (>50% reduction in initial keloid or hypertrophic scars and absence of all complications after the end of 4 weeks treatment) of Group A (intra-lesionaltriamcinolone combined with 5-fluorouracil) was 20 (64.52%) while in Group B (intra-lesionaltriamcinolone alone) was 9(29.03%) (p-value= 0.005). A study shown better efficacy of intra-lesionaltriamcinolone combined with 5-fluorouracil compared to triamcinolone alone (55% versus 20%) in terms of reduction in size and complications rate12.

Many previous studies have also shown that combination 5-FU/triamcinolone may be superior to intralesional steroid therapy13-14. In one study, the most effective regimen was found intra-lesionaltriamcinolone combined with 5-fluorouracil. A total of 85% of keloids showed more than 50% improvement in an open study by Kontochristopoulos et al15.

Darzi MA observed that intralesional triamcinolone acetoni de produced symptomatic relief in 72% and complete flattening in 64% of the lesions.16 However, Kill J noticed complete flattening of the lesions and cessation of itching in 52 (100%) of the cases.17 The study conducted by Nanda S observed more than 50% improvement in the size in almost 80% of cases that were been treated with 5-flourouracil.18 Kontochristopoulos G et al16 reported more than 50% improvement in size in 85% of the patients.

Sharma S et al19 in his study reported good to excellent results in 96% patients with this combination and also more acceptable to patients. The efficacy in terms of patient and observer assessment in TAC group patients is 20% and 15% respectively as compared to 55% and 40% in TAC + 5-FU in a study (in both keloids and hypertrophic scars).19

So, on the whole it is concluded intralesionaltriamcinolone combined with 5-fluorouracil is an effective way to treat keloids and hypertrophic scars. It may be better option than the intralesionaltriamcinolone alone and should be used routinely in our general practice in order to reduce the morbidity.

CONCLUSION

This study concluded that intra-lesionaltriamcinolone combined with 5-fluorouracil is better and more efficacious than intra-lesionaltriamcinolone alone in the treatment of keloids and hypertrophic scars. So,
we recommend that intra-lesional triamcinolone combined with 5-fluorouracil should be used routinely in these particular patients instead of intra-lesional triamcinolone alone in order to reduce the size of keloid or hypertrophic scars and without any complication which will ultimately reduce their morbidity.

REFERENCES