

Original Research

Effects of 5 fluorouracil in combination with crystalline triamcinolone acetonide suspension in treatment of keloids- A clinical study

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ABSTRACT:

Background: Keloids commonly appear on the upper trunk, and, in contrast to hypertrophic scars, which may show a similar appearance. The present study was conducted to assess therapeutic effects of 5 fluorouracil in combination with crystalline triamcinolone acetonide suspension in treatment of keloids. **Materials & Methods:** 80 patients with keloids of both genders were treated with cryotherapy and TAC every 4 weeks at least three times. Outcome and adverse events were recorded. **Results:** Out of 80 patients, males were 35 and females were 45. Common site was chest in 35, shoulder in 10, back in 5 and all sites in 30 patients. Previous therapy was TAP in 12, cryotherapy in 6 and laser therapy in 7 patients. Dermatology Life Quality Index (DLQI) at baseline was 8.9, at 1 month was 2.5 and at 12 months was 2.2. Adverse effects were hyperpigmentation in 7, teleangiectasia in 3, ulceration in 2 and systemic side effects in 2 patients. The difference was significant ($P < 0.05$). **Conclusion:** The combination of 5-FU and TAC in treatment of keloids found to be efficient.

Key words: Keloids, Scar, 5-FU

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INTRODUCTION

Excessive scarring is aesthetically disturbing and frequently represents a psychosocial burden for affected patients. As keloids often go along with pruritus, contractures, and pain, the need for treatment is apparent and not solely based on cosmetic reasoning.¹ Keloids are benign hyperproliferations of dermal connective tissue. Injury of the deep dermis commonly results in scar formation. The physiologic wound healing cascade consists of inflammation, proliferation, and a remodeling phase.² In pathologic scar formation, a prolonged inflammatory phase and some molecular alterations concerning inflammatory pathways are held responsible for excessive scarring. Keloids commonly appear on the upper trunk, and, in contrast to hypertrophic scars, which may show a similar appearance, they exceed the margins of the original wound. Keloids can occur spontaneously but often show a genetic predisposition.³ New treatment options are intralesional injections of 5-fluorouracil, interferon, and bleomycin for therapy-refractory scars as well as non-ablative and ablative

lasers. In clinical practice, the injection of crystalline glucocorticoids alone or in combination with cryotherapy represents a well-proven therapy. Successful treatment using conventional means has proven difficult, with low rates of sustained responses and high relapse rates.⁴ The commonly used glucocorticosteroid triamcinolone acetonide has many effects, including an anti-mitotic property inhibiting keratinocytes and fibroblasts and the suppression of tissue inflammation and vasoconstriction, resulting in keloid regression.⁵ The present study was conducted to assess therapeutic effects of 5 Fluorouracil in combination with crystalline triamcinolone acetonide suspension in treatment of keloids.

MATERIALS & METHODS

This study comprised of 80 patients with keloids of both genders. All were informed regarding the study and their written consent was obtained. Data such as name, age, gender etc. was recorded. Patients were treated with cryotherapy and TAC least three times every 4 weeks. Routine blood tests were

performed. Dermatology Life Quality Index (DLQI) was recorded at baseline, at 1month and 12 months FU. Results were assessed statistically using chi-

square test. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 80		
Gender	Males	Females
Number	35	45

Table I shows that out of 80 patients, males were 35 and females were 45.

Table II Assessment of variables

Parameters	Variables	Number	P value
Site	Chest	35	0.05
	Shoulder	10	
	Back	5	
	All sites	30	
Previous therapy	TAP	12	0.09
	Cryotherapy	6	
	Laser therapy	7	

Table II, graph I shows that common site was chest in 35, shoulder in 10, back in 5 and all sites in 30 patients. Previous therapy was TAP in 12, cryotherapy in 6 and laser therapy in 7 patients. The difference was significant (P< 0.05).

Graph I Assessment of variables

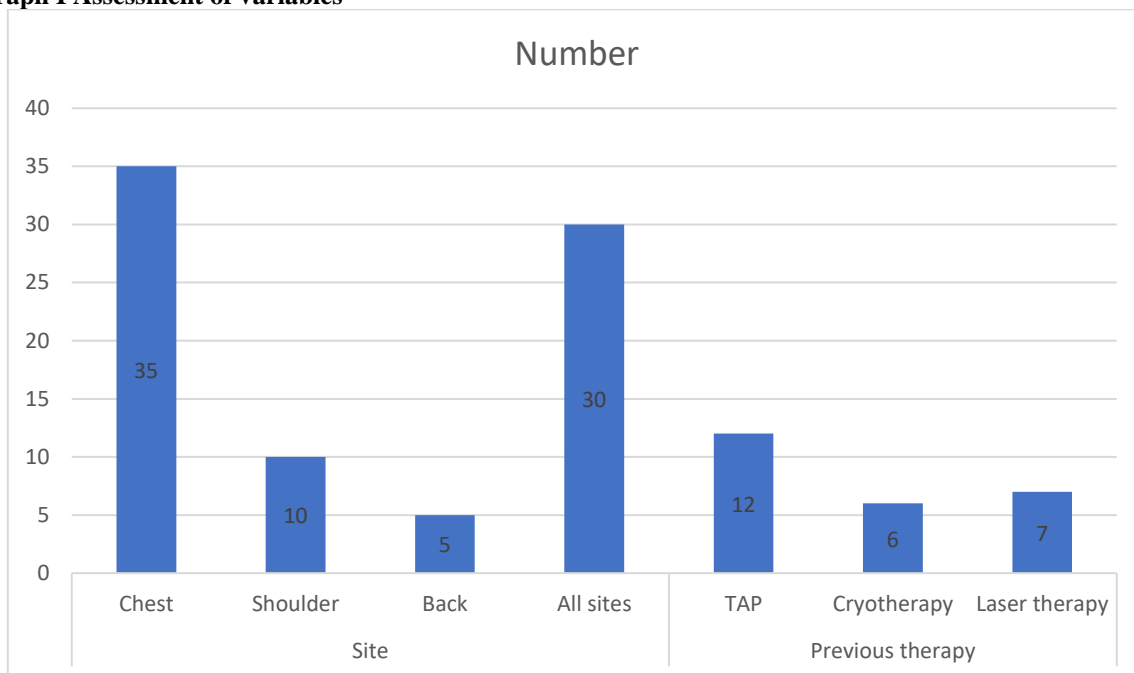
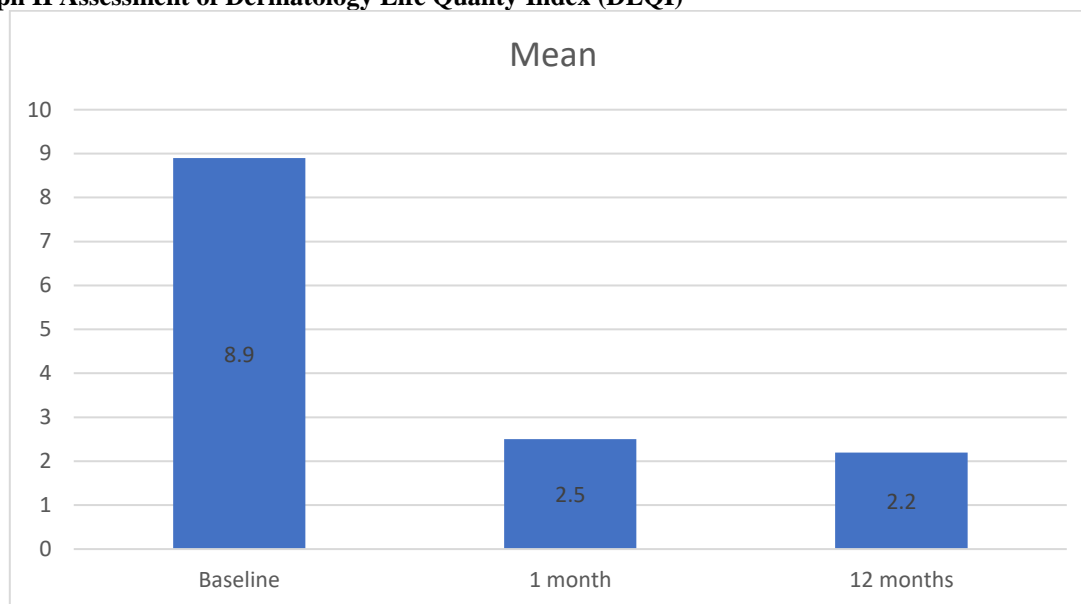


Table III Assessment of Dermatology Life Quality Index (DLQI)

Duration	Mean	P value
Baseline	8.9	0.01
1 month	2.5	
12 months	2.2	

Table III, graph II shows that Dermatology Life Quality Index (DLQI) at baseline was 8.9, at 1 month was 2.5 and at 12 months was 2.2. The difference was significant (P< 0.05).

Graph II Assessment of Dermatology Life Quality Index (DLQI)**Table IV Assessment of adverse effect**

Duration	Number	P value
Hyperpigmentation	7	0.03
Teleangiectasia	3	
Ulceration	2	
Systemic side effects	2	

Table IV shows that adverse effects were hyperpigmentation in 7, teleangiectasia in 3, ulceration in 2 and systemic side effects in 2 patients. The difference was significant ($P < 0.05$).

DISCUSSION

Keloids pose a significant challenge for treating physicians. A number of treatment regimens have been developed, such as the application of silicone-based products, cryotherapy or intralesional corticosteroids.⁶ Keloids may affect large parts of the skin surface and lead to severe functional impairment, particularly in genetically prone patients.⁷ Keloids are benign hyperproliferations of dermal connective tissue. Injury of the deep dermis commonly results in scar formation.⁸ The physiologic wound healing cascade consists of inflammation, proliferation, and a remodeling phase.⁹ Whereas, 5-fluorouracil (5-FU) inhibits the proliferation of fibroblasts as a pyrimidine analogue and has been successfully used for the treatment of keloids for many years. Most studies have focused on demonstrating the effects of high-dose 5-FU therapy (40–50 mg/mL), while others have promoted a ‘low-dose’ therapy using 1.4–3.5 mg/mL of 5-FU.^{10,11}

We found that out of 80 patients, males were 35 and females were 45. We found that common site was chest in 35, shoulder in 10, back in 5 and all sites in 30 patients. Previous therapy was TAP in 12, cryotherapy in 6 and laser therapy in 7 patients. Payapvipapong K et al¹² assessed the therapeutic effect of four courses of intralesional 5-FU in combination with TAC utilizing 3D analysis (PRIMOS), ultrasound and scar scales such as the

Patient and Observer Scar Assessment Scales (POSAS) and the Dermatology Life Quality Index (DLQI). 25 patients with keloids were treated using 5-FU and TAC every 4 weeks. 3D PRIMOS and ultrasound measurements revealed highly significant and stable reductions in height (baseline mean score: 4.0 ± 1.7 mm, 1-month FU mean score: 1.5 ± 0.8 mm, 12-month FU mean score: 1.8 ± 0.9 mm), volume (baseline mean score: $1,105 \pm 911.5$ mm³, 1-month FU mean score: 416.1 ± 218.1 mm³, 12-month FU mean score: 431.2 ± 253.6 mm³ respectively) and penetration depth of keloids (relative reduction between baseline and 12-month FU of 74.4%). The POSAS and DLQI scales confirmed significant objective and subjective improvements in scar appearance in all categories. The life quality associated with keloid appearance improved from a ‘moderate effect’ to a ‘small effect’ throughout the course of the study.

We found that Dermatology Life Quality Index (DLQI) at baseline was 8.9, at 1 month was 2.5 and at 12 months was 2.2. We found that adverse effects were hyperpigmentation in 7, teleangiectasia in 3, ulceration in 2 and systemic side effects in 2 patients. Schwaiger et al¹³ evaluated the therapeutic benefits of cryotherapy directly followed by intralesional crystalline triamcinolone acetonide injections using ultrasound and a 3D topographic imaging device. Fifteen patients with keloids were

treated with cryotherapy and intralesional injections of triamcinolone acetonide for a total of 4 times at intervals of 4 weeks. Objective assessment was performed at each visit. After the last treatment, a significant average reduction of scar volume of 34.3% and an average decrease in scar height of 41.3% as determined by 3D imaging was observed compared with baseline. Ultrasound revealed an average reduction of scar height of 31.7% and an average decrease in tissue penetration depth of 37.8% when compared with baseline measurements.

CONCLUSION

Authors found that the combination of 5-FU and TAC in treatment of keloids found be efficient.

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