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Original Article

Comparative Study of Intralesional Triamcinolone Alone and Combination with 5-Flurourouracil in Management of Keloid

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ABSTRACT

Background: *Keloids is an excessive proliferation of dermal fibroblasts, spontaneously or following any types of skin injury. Both intralesional triamcinolone alone and its combination with 5-flurourouracil are used in the management of keloid. The aim of this study was to compare the efficacy and outcomes of triamcinolone alone and its combination with 5-flurourouracil in the management of keloid.* ***Methods and materials:*** *This comparative study was conducted at the department of Dermatology and Venereology in Cumilla Medical College Hospital, Cumilla, Bangladesh during the period from June 2018 to May 2019.* ***Results:*** *In this study, the mean (±SD) Vancouver Scar Scale scores regarding the height, vascularity, pliability and pigmentation at baseline were recorded before starting the treatment tenures. At the final follow-up period, regarding the height, and pigmentation among B (TAC+5-FU) group patients, the mean (±SD) vancouver scar scale scores were found significantly lower than those among A (TAC) group patients and the P values were 0.022 and 0.012 respectively. Besides these, during the final follow-up period, in group A, the mean pain and pruritus scores were found 0.19 and 0.44 respectively which were found less enough than 0.08 and 0.29 in group B respectively.* ***Conclusion:*** *This current comparative study has shown that the combination therapy of triamcinolone acetonide and 5-flourouracil (TAC+5-FU) is more effective and faster in response with fewer side effects compared to that of intralesional triamcinolone acetonide alone (TAC) alone in the treatment of keloids.*

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Keywords: *Keloid, 5-fluorouracil, Vancouver scar scale, Triamcinolone acetonide*

INTRODUCTION

In this current study, in total 30 patients with keloids attended and treated in the mentioned hospital were selected as the study subjects and divided into two equal groups. The aim of this study was to compare the efficacy and outcomes of triamcinolone alone and its combination with 5-flurourouracil in the management of keloid. In group A 15 patients received intralesional triamcinolone acetonide alone; and in group B 15 patients received triamcinolone acetonide and 5-flourouracil in combined. Keloids are an excessive proliferation of dermal fibroblasts, spontaneously or following any type of skin injury. The word 'keloid' is taken from the Greek word "cheloides" which means "crab's claw". Basically, a keloid is an elevated fibrous scar, that extends beyond the borders of the original wound and does not regress, and usually recurs after excision [1]. It forms due to idiopathic excessive accumulation of collagen at the wound by augmented biosynthesis of fibroblasts [2]. The very common sites for developing the keloids are usually the sternum, earlobes, shoulders, and cheeks [3]. It develops from different types of skin conditions like wounds, granulomas, vaccination, acne, and earlobe piercing as well as spontaneously with not any definable cause [4]. A high recurrence rate of keloids has originated a wide variety of treatment options like compression therapy, intralesional injections of corticosteroid, bleomycin, methotrexate, radiotherapy, cryosurgery, tamoxifen, laser therapy, and tacrolimus [5]. Triamcinolone acetonide (TCA) inhibits protein synthesis and fibroblast migration. Some promise in the treatment procedures of keloid has been presented by 5-fluorouracil (5- FU), which is a very potent inhibitor of thymidylate synthetase and interferes with pyrimidine metabolism, and DNA synthesis is blocked [6]. It was also found that, when used alone, 5-FU did not perform better than the steroid. In a study, the mean reduction (In volume) of keloids treated with 5-FU was 57.48% with a standard deviation of 16 [7]. Among patients treated with TCA, the mean reduction (In volume) was found 71.23% with a standard deviation (SD) of 18.01[7]. However, 5-FU as a combination with triamcinolone showed better efficacy than that of steroid alone. In another study, Sharma et al.8 found good to excellent response among 96% of cases treated by a combination of 5-FU as well as TCA in contrast to 72% of cases treated with TCA alone [8]. In this current study, the efficacy of both treatment options was evaluated by using the authentic Vancouver Score [9]. The aim of the study was to compare the efficacy and outcomes of triamcinolone alone and its combination with 5-flurourouracil in the management of keloid.

METHODS AND MATERIALS

This comparative study was conducted at the department of Dermatology and

Venereology in Cumilla Medical College Hospital, Cumilla, Bangladesh during the period from June 2018 to May 2019. In total 30 patients with keloids attended and treated in the mentioned hospital were selected as the study subjects and divided into two equal groups. In group, A 15 patients received intralesional triamcinolone acetonide alone, and in group B 15 patients received triamcinolone acetonide and 5-flourouracil combined. Patients having keloids of both genders, between the age of 15 and 80 years, irrespective of size as well as sites of the keloids, with no prior treatment history in the past 6 months were included as the study subjects. According to the exclusion criteria of this study, pregnant and lactating women and patients with other comorbidities were excluded. Proper written informed consent was taken from all the participants before data collection. Details of the participants like name, age, sex, family history, address, and presenting complaints were recorded. Group A patients received intralesional triamcinolone acetonide (TAC) 40 mg/ml and Group B patients received an intralesional injection of a combination of TAC (40mg/ml) and 5FU (50mg/ml) in a ratio of 1:9. The injections were directed every 3 weeks till 24 weeks. All the patients were evaluated prior to every dose of injections and a final evaluation was completed 28 weeks after the first dose. An evaluation was performed objectively by Vancouver Scar Scale (VSS) and subjectively by assessing pain and pruritus. For VSS (Vancouver Scar Scale), keloid height was measured by calipers, and the pliability was assessed by palpation. Vascularity was assessed by visual inspection and pigmentation was scored after blanching and comparing with the surrounding skin. Pain and pruritus were scored on a 3-point scale as follows: 0=no pain/pruritus; 1=mild; 2=moderate; 3=severe pain/ pruritus. Adverse effects and other complaints during the tenure of the treatment were also recorded.

RESULTS

In this current comparative study, the mean (±SD) age of group A patient was 29.16 ± 8.79 years whereas it was 30.22 ± 9.15 among group B patients. In group A, male patients were 40% whereas the female patients were 60%. On the other hand, in group B, male patients were 46.67% whereas the female patients were 53.33%. So, among both the groups female were dominating in number. In analyzing the etiology of the patients, we observed in group A, trauma, infections, and spontaneous were found as the etiologies among 53.33%, 26.67%, and 20.00% of participants respectively. On the other hand, in group B, trauma, infections, and spontaneous were found as the etiologies among 60.00%, 26.67%, and 13.33% of participants respectively. In group A, as location pre sternum, trunk, extremities, and face were found among 40.00%, 33.33%, 20.00%, and 6.67% of participants respectively. On the other hand, in group B those locations were associated among 46.67%, 26.67%, 20.00%, and 6.67% of participants respectively. The mean (±SD) Vancouver scar scale scores regarding the height, vascularity, pliability, and pigmentation at baseline were recorded before starting the treatment tenures. At the final follow-up period, regarding the height, and pigmentation among B group patients, the mean (±SD) vancouver scar scale scores

were found significantly lower than those among A group patients and the P values were 0.022 and 0.012 respectively. Besides these, during the final follow-up period, in group A the mean pain and pruritus scores were found 0.19 and 0.44 respectively which were found less enough than 0.08 and 0.29 in group B respectively.

Table I: Demographic and clinical status of participants (N=30)

Variable	Group A (n=15)		Group B (n=15)	
	n	%	n	%
Gender distribution				
Female	9	60	8	53.33
Male	6	40	7	46.67
Age distribution (Year)				
Mean ± SD	29.16 ± 8.79		30.22 ± 9.15	
Etiology distribution				
Trauma	8	53.33	9	60.00
Infections	4	26.67	4	26.67
Spontaneous	3	20.00	2	13.33
Location distribution				
Pre sternum	6	40.00	7	46.67
Trunk	5	33.33	4	26.67
Extremities	3	20.00	3	20.00
Face	1	6.67	1	6.67

Table II: Mean (±SD) Vancouver Scar Scale score at baseline and final follow-up (N=30)

Parameters	Group	Baseline	24 Weeks
Height	Gr.-A	1.77 ± 0.61	0.71 ± 0.36
	Gr.-B	1.82 ± 0.52	0.36 ± 0.43
	P value at follow-up		0.022
Vascularity	Gr.-A	1.79 ± 0.39	0.35 ± 0.24
	Gr.-B	1.82 ± 0.31	0.27 ± 0.29
	P value at follow-up		0.417
Pliability	Gr.-A	2.67 ± 0.57	0.66 ± 0.34
	Gr.-B	2.73 ± 0.65	0.51 ± 0.22
	P value at follow-up		0.163
Pigmentation	Gr.-A	1.87 ± 0.69	0.76 ± 0.47
	Gr.-B	1.79 ± 0.45	0.37 ± 0.31
	P value at follow-up		0.012

Table III: Mean pain and pruritus scores at baseline and final follow-up (N=30)

Characteristics	Group	Baseline	24 Weeks
Pain	Gr.-A	2.41	0.19
	Gr.-B	2.46	0.08
Pruritus	Gr.-A	2.68	0.44
	Gr.-B	2.72	0.29

DISCUSSION

The aim of this study was to compare the efficacy and outcomes of triamcinolone alone and its combination with 5-flurourouracil in the management of keloid. Basically, it is a disease of the young population. Keloids are most common in people younger than 30 years of age with equal sex distribution. Especially, during puberty as well as pregnancy, occurrences of keloids are also influenced by elevated hormone levels. Because of the significant psychological and functional burden, patients frequently seek medical treatment [10]. In this study, the mean (±SD) age of group A patients was 29.16 ± 8.79 years whereas it was 30.22 ± 9.15 among group B patients. In group A, male patients were 40% whereas the female patients were 60%. On the other hand, in group B, male patients were 46.67% whereas the female patients were 53.33%. So, among both the groups female were dominating in number. The majority of the patients enrolled in our study were below 30 years of age which is comparable with other studies, carried out in several other parts of the world. Berman et al. reported that most patients having keloids were younger than 30 years of age [11]. Gauglitz et al. also found that the highest incidence of keloids was in the 2nd and 3rd decades of life [12]. In another study conducted in Iran, the keloids were more prevalent between 15 to 30 years of age [13]. In our study, the mean (±SD) Vancouver Scar Scale scores regarding the height, vascularity, pliability, and pigmentation at baseline were recorded before starting the treatment tenures. At the final follow-up period, regarding the height, and pigmentation among B group patients, the mean (±SD) vancouver scar scale scores were found significantly lower than those among A group patients and the P values were 0.022 and 0.012 respectively. Besides these, during the final follow-up period, in group A the mean pain and pruritus scores were found 0.19 and 0.44 respectively which were found less enough than 0.08 and 0.29 in group B respectively. In a study, a comparison of efficacy showed that 5FU + TCA was effective in 98% of cases (group A) and TCA alone in 62% of cases in Group B. At the final evaluation, the mean reduction in the Vancouver Scar Score was -71.18 (±8.69) in the intralesional 5-FU plus TCA group as compared to -50.80 (±8.59) in the intralesional TCA group. (p = 0.001) [14]. Intralesional 5-FU has been applied as an adjuvant therapy to intralesional TCA and 585-nm flashlamp-pumped pulsed dye laser in the majority of the studies in the prevention and in treatment of keloids [15].

Limitation of the study

This was a single-centered study with a small-sized sample. So, the findings of this

study may not reflect the exact scenario of the whole country.

CONCLUSION & RECOMMENDATION

This current comparative study has shown that the combination therapy of TAC+5-FU is more effective and faster in response with fewer side effects compared to that of TAC alone in the treatment of keloids. For getting more specific information regarding this issue we would like to recommend conducting more studies in several places with larger-sized samples.

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