EFFECT OF INTRALESIONAL INJECTION OF TRIAMCINOLONE ACETONIDE ON KELOID- A PROSPECTIVE OBSERVATIONAL STUDY

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ABSTRACT

BACKGROUND

Wound repairs normally culminate in fine scars, the only evidence of dermal injuries. In certain individuals; however, the repair process may go awry and wound may heal with large elevated scar known as Keloid or hypertrophic scar. Many treatment methods are available. All have merits and demerits, but till now initial treatment for keloid is intralesional injection of Triamcinolone Acetonide (TA).

The aim of this study is to find out the different local effects of intralesional injection of Triamcinolone Acetonide (TA) on keloid.

MATERIALS AND METHODS

An analytical observational prospective study was conducted on 156 patients of keloid on different sites of body, they were treated with intralesional injection of TA. All patients were kept on followup. Clinical data and final results of all patients were analysed and reported.

RESULTS

Out of 156 patients, 92 were female and 64 were male; 12 patients between 5- 10 years, 44 patients between 11-20 years, 68 patients between 21-30 years, 16 patients between 31-40 years, 8 patients between 41-50 years and 8 patients between 51-60 years. Effect of TA on keloid were documented as 43.59% recurrence, atrophy of skin in 17.95%, ulcer 10.26%, abscess 5.13%, vascular dilatation 8% and hypopigmentation of skin 15.38%.

CONCLUSION

Different effects are observed in keloid patients treated with TA but till now intralesional injection of TA is the initial treatment of choice. The treatment depends on acceptance and economy of treatment.

KEYWORDS

Intralesional, Injection, Triamcinolone Acetonide, Keloid.

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BACKGROUND

Biochemical process of wound repair normally culminates in fine scars, the only evidence of dermal injury. In certain individuals; however, the repair process may go awry and wound may heal with large elevated scar known as Keloid or hypertrophic scar. Exact aetiology of formation of keloid isn't properly understood. Complications of abnormal scar formation are often severe. Many modalities of treatment are available for keloid. They include corticosteroid intralesional injection,^[1,2,3,4,5,6,7,8] 5-FU,^[9,10&11] Bleomycin,^[12&13] Verapamil,^[14,15,16,17,18,19] Silicone gel sheet,^[20,21,22,23] laser therapy,^[24] cryotherapy,^[25,26,27] interferon,^[28] Radiation,^[29,30] Asiaticoside.^[31] But till now no absolute result oriented treatment method has been found. Intralesional injection of Triamcinolone Acetonide alone has been used since long and till now has retained its efficacy as an initial treatment of keloid initially.

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Study was conducted on 156 patients with keloid of age about 5 years and above. Out of these, chest keloids were 53.85% (Fig. 1), 15.38% upper limb (Fig. 2), 7.69% lower limb (Fig. 3), 20.51% ear (Fig. 4) and 2.56% face (Fig. 5). In all the keloid patients, intralesional injection of Triamcinolone Acetonide (TA) was given. The patients were kept under keen observation and regular followups. It was found that, out of 156 patients, 17.95% atrophy of skin (Fig. 6), 15.38% hypopigmentation (Fig. 7), 8.0% vascular dilatation (Fig. 8), 10.26% ulceration (Fig. 9), 5.13% keloid abscess (Fig. 10) and 43.59% recurrence. (Fig. 11).

MATERIALS AND METHODS

This analytical observational prospective study was carried out in the Department of General Surgery at Late Sri Lakhiram Agarwal Memorial Medical College which is a tertiary care referral teaching hospital. Consecutive cases with keloid were included by the author irrespective of the aetiology. In between Nov. 2014 to Oct. 2016, 156 patients attended the Dept. of Surgery, All these patients presented with swelling in different sites of body. Each patient's history was taken, examined properly and evaluated. Medical diseases like Diabetes mellitus, hypertension, tuberculosis and any auto immune disease were excluded. In doubtful cases, incisional biopsy was done for diagnosis. All 156 patients were free of medical diseases. Patients were categorised as per sex, age and different sites of occurrence of keloid. All 156 cases were selected and planned for intralesional injection of TA. Proper

written consent was taken from the patients for intralesional injection, and counselled about the disease and side effects of drug.

All selected patients were clinically assessed and the dimensions of the keloid [length, breadth and height] were measured from skin surface by calliper. Consent for Photograph of disease site of all patients was taken before and during followup period of intralesional injection.

Intraleloidal injection was given by a sterile insulin syringe loaded with TA with concentration of 40 mg/mL of injection. Preferred position of patient was supine because if severe pain occurred during injection, patient will feel discomfort and symptoms of vasovagal attack may occur. The injection site (keloid) prepared with alcoholic preparation of povidone iodine solution (5%). Dose of injection was given as per size of keloid. Maximum dose of injection was restricted to 120 mg per sitting. Interval of injection was between 4-6 weeks till complete regression of swelling. The patients were followed up regularly. If the patient didn't come in time, the patient was called by telephone for followup. During the followup period, the regression of size of keloid was assessed clinically and also by the feedback provided by the patient. During the treatment period, the local effect of injection like ulcer, abscess, hypopigmentation, dermal atrophy, local vasodilatation and recurrence of disease was observed.

RESULTS

156 patients with keloid attending the Department of Surgery of a tertiary teaching hospital attached to Lakhiram Agarwal Memorial Govt, Medical College, Raigarh (CG) were included in the present study. The study period was from November 2014 to December 2016. All patients complained of itching of the swelling irrespective of duration of disease. Some patients had severe itching of keloid causing abrasion of surrounding skin. Itching relieved dramatically within 7 days of first dose of intralesional injection of TA. Initial injection of TA to the keloidal tissue is very laborious due to its firm consistency. Subsequent injections are a bit easy to administer due to decreased tissue compactness.

In this study, it was found that, out of the total no. of patients (n-156), male population was 41.03% (n-64) and female population was 58.97% (n-92). Male to female ratio was 1: 1.1473. Keloid patients in different age group were: 5-10 years (n- 12) 7.69%, 11-20 years (44) 28.21%, 21-30 years (n-68) 43.59%, 31-40 years (n-16) 10.26%, 41-50 years (n-8) 5.13% and 51-60 years (n-8) 5.13% (Table 1). Irrespective of age group, different sites of distribution was 53.85% on chest, ear 20.51%, face 2.56%, upper limb 15.38% and lower limb 7.69% (Table. 2). Local effects of TA on keloid were- severe pain during injection 76.92%, atrophy of skin 17.95%, ulcer 10.26%, abscess 5.13%, vascular dilatation 8%, hypopigmentation of skin 15.38%, and recurrence 43.59% (Table. 3).

Recurrence was high in female with long duration of Keloid on chest (between two breasts). Probably, it may be due to stretching of area by both breasts. It was observed that maximum recurrence occurred of keloid on chest with length more than 2.5 cm. Recurrence of keloid of lower limb was less as compared to other region of body. Hypopigmentation of skin after intralesional injection of TA was mostly found on upper and lower limb. Vascular dilatation was noticed usually on keloid of chest and ear.

Age Group (In years)	No. of Patients (n)	Percentage (%)
5 - 10	12	7.69
11- 20	44	28.21
21-30	68	43.59
31-40	16	10.26
41-50	08	05.13
50-60	08	05.13

Table 1. Occurrence of Keloid (% age) in Different Age Groups

Site	No. of Patients (n)	Percentage (%)
Chest	84	53.85
Ear	32	20.51
Face	04	02.56
Upper limb	24	15.38
Lower limb	12	07.69

Table 2. Different Sites of Distribution of Keloid

Effect of TA Injection	No. of Patients (n)	Percentage (%)
Skin Atrophy	28	17.95
Ulcer	16	10.26
Keloid abscess	08	05.13
Vascular dilation	12	08.00
Hypopigmentation	24	15.38
Recurrence	68	43.59

Table 3. Local Effect of Intralesional Injection of Triamcinolone Acetonide (TA)

Figure 1. Keloid on the Chest of an Adult Female in between Breasts

Figure 2. Keloid on the Right Shoulder of a 12-year-old Female Child

Figure 3. Keloid on the Right Knee of a 14-year-old Child

Figure 4. Keloid on Ear of an Adult Female

Figure 5. Keloid on the Face in Front of Tragus of Ear of a 10-year-old Male Child

Figure 6. Atrophy of skin on the Shoulder of a 12-year-old Female Child

Figure 7. Hypopigmentation of Skin of Elbow Keloid of an Adult Female following TA Injection

Figure 8. Local Vascular Dilation on Injected Site of Chest Keloid

Figure 9. Ulcer on Chest Keloid of an Adult Male

Figure 10. Keloid Abscess on the Chest of a 55-year-old Male, Pus is Coming Out

Figure 11. Recurrence of Keloid on the Chest of a Male Patient

DISCUSSION

Complications of abnormal scar formation are often severe and their clinical management is frustrating. Both surgeon and patient must accept the reality that neither pharmacological intervention nor technical skill will ensure prevention or cure. Different modalities of treatment are available for keloid and many research studies were done, but till now the initial approach to treat keloid is intralesional injection of Steroid. Triamcinolone Acetonide is the steroid of choice. It inhibits prolylhydroxylase activity. It increases collagenolytic activity. It alters various aspect of the inflammatory response, which is the major modulator of the healing process.

All patients accepted intralesional TA injection easily as the initial choice of treatment.

In this Study, it was Noticed that-

1. Maximum occurrence of keloid was in age group between 21-30 years and very less percentage found in 50 years & above.
2. Highest site of Keloid was on chest (sternal area) and very low percentage on face.
3. Local effect of TA on keloid - maximum percentage of patients presented with severe pain, the cause may be due to increase in volume and stretching of keloid which decreased on subsequent injection. Due to severe pain some patients felt discomfort, severe sweating and vasomotor collapse. In these cases, patients were resuscitated and recovered to normal. A very few patients developed abscess.
4. Percentage of recurrence of keloid was high within 3 months of completion of therapy.

CONCLUSION

Keloid is a sequence of abnormal healing process of wound. There is no exact defined aetiology for keloid formation. Different modalities of treatment are given to patients leading to different results.

Benefits of TA on keloid was its high rate of acceptance and its low cost. So, intralesional injection of TA is initial treatment of choice. If there is failure, then alternate treatment modalities are started.

In this study, after weighing the benefits and adverse effects of intralesional TA injection, it can be concluded that this mode of treatment is better as an initial therapy.

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