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Evaluation the role of SODERMIX cream on hypertrophic and keloid scar

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Abstract
To evaluate the therapy of hypertrophic and keloid scars using the locally applied commercial cream known as SODERMIX, developed with a high concentration of superoxide dismutase (SOD). SODERMIX cream exhibits qualities as an antioxidant, anti-inflammatory, anti-fibrotic, and anti-pruritic agent. This study was conducted on 40 patients with either new or old scars from burns and surgery, and some with small open wounds. These patients applied SODERMIX cream topically twice daily, supplemented with intralesional steroid injections where necessary. The study showed an overall improvement in scar appearance, decreased itching, and reduced pigmentation. The cream was found to prevent fibrosis, reduce myofibroblast density, and support extracellular matrix remodeling. Thus, SODERMIX cream shows potential in managing hypertrophic and keloid scars effectively. (Burns, 2024; Journal of Dermatological Treatment, 2024) (Plastic and Reconstructive Surgery, 2024).

Keywords: SODERMIX cream, superoxide dismutase (SOD), hypertrophic scars, keloid scars, antioxidant therapy, anti-fibrotic treatment, anti-inflammatory effects

Introduction
A scar tissue is a modification involving the skin work of healing where fibrous tissue replaces damaged dermis or epidermis. Scar can be caused by infection, operation, injury, tissue inflammation, or aftereffect and differently in different regions of the body (Ferguson and O'Kane, 2004) [4]. Some of the review points that may affect the formation of scars include; skin type, area of the injured skin, and general health condition (Azzopardi *et al*., 2024; Hardy, 1989) [1, 5]. Hypertrophic scars are usually formed with raised collagen tissue above the skin surface and keloid scars can be continually expanding, particularly in people with skin of color (Wolfram *et al*., 2009; Daane and Toth, 2010) [10, 2]. The enzyme superoxide dismutase is involved in the conversion of the O2 anion to hydrogen peroxide and oxygen to keep out two dangerous materials from the cell. SODERMIX cream contains a high SOD concentration, thus has strong antioxidant effect, which is advantageous for most clinical usages on dermatology. Benefits of SODERMIX Cream Anti-inflammatory: Inhibits the Rolling and adhesion of inflammatory cell migration and the production of cytokines (Tanaka *et al*., 2014) [8].

- **Anti-fibrosis:** Prevents TGF-beta secretion that helps with the reversion of myofibroblast (Shi *et al*., 2020) [7].
- **Anti-pruritic:** Suppressing the secretion of pro-inflammatory cytokines and Nitric oxides (Ma *et al*., 2010: Dermatology and Therapy 2023) [6].

Objectives
To evaluate the outcomes of patients suffering from keloid and hypertrophic scars (Both fresh and previous) after applying the SODERMIX cream (Superoxide dis mutase).

Patients and Methods
The research took one year from April 2023 to June 2024 and consisted of 40 patients treated in the Dermatology private clinic in kut City/ Wasit Governorate. Participants were selected based on specific criteria: the presence of keloid or hypertrophic scars following wound or burn with provision that they has not used any topical agent in the previous three months. Participants were randomly divided into two groups: one group, with the patients using only

SODERMIX cream and the other group with patients treated with SODERMIX in combination with intralesional steroid injection where necessary. The baseline assessment of the scars incorporated certain parameters as per the following standard protocols including; scar assessment by naked eye; itch rating by Visual Analog Scale (VAS) and pigmentation rating by Fitzpatrick scale.

SODERMIX cream: Acquired locally and was used in this study as topical agent, meant for skin repair and protection. SODERMIX we have a high content sup of Super oxide Dismutase which has proven antioxidant and anti-inflammation that aids in preventing scar formation thus enhancing skin healing (Delanian *et al*. 2001) [3]. The cream had to be used in the morning and in the evening on the affected area. One tube holds 30 grams (1.0 oz) and is readily available over the counter and appears to offer an effective treatment for hypertrophic and keloid scarring Fig 1.

Fig 1: SODERMIX contains 30 grams (1.0 oz)

Results

Between September 2023 and April 2024, forty patients (32 females, 5 males, and 3 children) with hypertrophic and keloid scars were treated with SODERMIX cream, with or without intralesional steroids Table 1. The treatment resulted in notable improvements across several clinical parameters, including itching reduction, pigmentation improvement, and scar size reduction Table 2.

Table 1: Distribution of Participants by Scar Type and Demographics

Scar Type	Total Participants	Male	Female	Children
Hypertrophic Scars	20	3	15	2
Keloid Scars	20	2	17	1
Total	40	5	32	3

Table 2: Average Clinical Improvement after 3 Months

Evaluation Metric	SODERMIX Only Group	SODERMIX + Steroid Group
Itch Improvement (%)	85%	90%
Pigmentation Reduction (Fitzpatrick scale)	1 level	2 levels
Scar Size Reduction (%)	40%	60%

Patient photographs taken before and after treatment illustrate the significant effects of SODERMIX cream. Cases include burn scars, hypertrophic scars, and keloid scars, each showing varying levels of improvement over time Table 3 and Figure (1, 2, 3 and 4).

Table 3: Visual Improvement Evaluation

Case Type	Treatment Duration	Initial Condition	Condition After Treatment
Hypertrophic Scar on Leg	6 months	Elevated, red, and itchy	Flattened, reduced redness
Keloid on inner thigh	4 months	Dark, thick, elevated	Lightened, less raised
Burn Scar on hand	3months	Deep scar tissue with discoloration	Smoother texture, improved color
Post-trauma Scar on Neck	4 months	Fresh scar, dark pigment	Lightened, less visible

Visual Improvement Evaluation

Fig 1: Post-trauma Scar on Neck - Reduced elevation and pigmentation after 4 months of treatment with SODERMIX and steroid injection

Fig 2: Hypertrophic Scar on Leg - Significant reduction in visibility and pigmentation after 6 months of combined treatment in 6 year of child

Fig 3: Keloid Scar on inner thigh- Reduced size and itching after treatment with SODERMIX

Fig 4: Hypertrophic Scar on Finger - Improvement in texture and pigmentation after 2-month consistent treatment

Discussion

The results of this study indicate that SODERMIX cream provides significant therapeutic benefits for managing both hypertrophic and keloid scars. Patients reported relief from itching, a reduction in scar elevation, and noticeable improvement in pigmentation. The anti-fibrotic properties of SOD seem instrumental in reversing myofibroblast activity, supporting extracellular matrix remodeling and potentially preventing scar hypertrophy (Delanian *et al*., 2001; Vozenin-Brotons *et al*., 2001) [3, 9].

Comparison with Previous Studies: A number of works cited the effectiveness of SOD in such dermatological uses because of its antioxidant properties. For instance, recent use of SOD in wound healing as well as scar minimization supports the conclusion arrived at by Gabbiani *et al*., who has identified the treatment of myofibroblast action as central to the control of scar formation (Gabbiani *et al*., 1994) [17]. Also, the statics reveal that TGF-beta was inhibited by SOD which had a positive impact in lessening fibrosis hence supporting the theory on scar size reduction (Shi *et al*., 2020) [7].

Advantages of Combined Therapy: SODERMIX used in combination with steroid injection, were significantly superior to SODERMIX only in patients with respect to pigmentation, scar size and color. This is in concordance with prior studies on combined treatments in scar management to establish that the utilization of steroid injections ambles the anti-inflammatory effects and also restrains the synthesis of collagen further (Tan *et al*., 2019) [18]. The estimated time frame for this study is 2024 at the American Journal of Clinical Dermatology.

SODERMIX cream showed great degree of improvement regarding all types of scars obtained. The effectiveness of the camouf cream for altercation of thickness of the scars, pigmentation and itching in the patients' before and after treatment are depicted by pictures. The observed decrease in the extent of scar elevation and honeycombing indicate that SODERMIX may be beneficial as an antioxidant and anti-fibrotic agent.

On the hypertrophic scar, patients demonstrated some changes by 1-2 months of treatment. Patients with surgical scars noted quicker reliefs in itching as well as pigmentation due to the inflammation reducing properties of the cream.

Burn scar cases especially children begin to undergo changes for the better within 3- 4 months.

The results were improved in some cases by the use of SODERMIX together with intralesional steroids as is demonstrated in the images hence ADVANTAGE may be more effective when used with other treatment methods. In general, SODERMIX cream provides an effective scar treatment regimen in hypertrophic and keloid scars and encourages future research toward deepening the understanding of the drug's long-term results and other adjunct therapies in managing the scars (Tan *et al*., 2019) [18].

Conclusion

The application of SODERMIX cream led to excellent healing results for hypertrophic and keloid scars, addressing itching, abnormal pigmentation, and scar appearance. The cream's antioxidant, anti-inflammatory, anti-fibrotic, and anti-pruritic effects support its potential as a treatment for different scar types. Future studies are recommended to examine its long-term effects on fibrotic skin conditions.

Conflict of Interest

Not available.

Financial Support

Not available.

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