Reconstructive Surgery & Anaplastology

Short Communication

Comparing Microneedling and Glycolic Acid Chemical Peel for Acne Scar Treatment in Skin of Color Patients

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Abstract

Acne vulgaris is a common skin disease frequently resulting in scarring. Scars secondary to acne can lead to physical disfigurements and a profound psychological impact. Early and effective treatment is the best means to minimize and prevent acne scarring. In patients with darker skin tones, current acne scar treatments pose complications including dyspigmentation, further scarring, and overall unsatisfactory clinical outcomes. Our objective was to compare the efficacy of microneedling and 35% glycolic acid chemical peels in the treatment of acne scars and determine whether either treatment provides a more satisfactory profile for patients with darker skin tones. Sixty patients of Fitzpatrick skin photo type IV-VI with atrophic acne scars were randomized into Group A, receiving microneedling every two weeks for a total of 12 weeks, and Group B, receiving chemical peels every two weeks for a total of 12 weeks. Acne scar treatment efficacy was represented by a x >1 grade improvement from baseline measured two weeks after the completion of the last treatment session according to the Goodman and Baron Scarring Grading System. Group A demonstrated more improved outcomes in acne scar treatment compared to Group B. 73.33% (n=22) of Group A patients were treated effectively while 33.33% (n=10) in Group B were treated effectively. Additionally, 26.67% (n=8) in Group A showed no efficacy in improvement after treatment compared to 66.67% (n=20) in Group B. Microneedling provided better efficacy and improvement outcomes than 35% glycolic acid peels for acne scar treatment in our patient population with Fitzpatrick skin phototype IV-VI.

Acne is estimated to affect 94% of the global population, making it the eighth most prevalent disease worldwide. Epidemiological studies have demonstrated that acne is most common in adolescent teens, with boys most frequently affected, particularly with more severe forms of the disease. Acne is a common condition seen in people between 11 and 30 years of age and in up to 5% of older adults. In some patients, the severe inflammatory response results in permanent scars. Scars can involve textural change in the superficial and deep dermis. Treatment of acne scarring creates a challenge for both patients and dermatologists. Many options are available: laser surgery, radiofrequency intervention, chemical peels, chemical reconstruction of skin scars (cross) technique, dermabrasion, needling, subcision, punch techniques, fat transplantation, and other tissue augmenting agents. Each scar type has a different structural cause warranting a personalized approach. Little literature exists about the safety and efficacy of combining such procedures and devices. Skin needling is a technique which is predominantly used to improve the appearance of cutaneous scarring and photodamage. Fine needles puncture the skin, resulting in increased dermal elastin and collagen, collagen remodeling, and thickening of the epidermis and dermis. Additionally, skin needling creates small channels, which increase the absorption of topically applied preparations, a property which has been used in various dermatological treatments. Both manual and electronic handheld skin needling devices are now widely available as low-cost therapies for the treatment of acne scarring.

The A Z.U.M.J.Vol. 24; No.1 Jan.;2018 Microneedling and Glycolic Acid..... Amr N.; et al.... -45- microneedles penetrate through the epidermis but do not remove it. The epidermis is only punctured and rapidly heals based on the controlled mechanical stimulation of the wound-healing process by the needle. Wound healing involves three phases: initiation/inflammatory, proliferation and remodeling. The commercially available microneedling devices are, dermaroller, dermapen and derma stamp. Dermaroller has a pit fall of variable pressure application by physician. Dermapen designed in a special form to overcome these varieties beside control microneedling depth penetration of the skin. Dermapen can be described as a spring-loaded, fractional micro needling device, with an adjustment ring allowing for alteration of the heights of the micro needling. This carries out the function of „fractional mechanical resurfacing. It utilizes an electrically powered pen to deliver a vibrating stamp-like motion to the skin, creating a series of micro-channels in the skin. Derma stamp is a stamp shaped and it contains 0.8 mm or 2.1 mm long multiple stainless-steel needles. It simply presses down on the scar 3˜4 times and makes 200˜300 holes on 1 cm2 scar area. Derma stamping breaks the dense collagen fiber and fibroblast in the scar tissue and rearranges collagen fiber and fibroblast in the scar tissue.

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