

CASE STUDY

Use of post-procedural hydration mask (Maskād™) to reduce pain associated with micro-needling

Nicholas J. Sadgrove, PhD. , Jeffrey Rapaport, MD, FAAD.

Abstract

Background: Controlled and clinically administered regenerative therapies that promote cellular senescence, to trigger dermal restructuring and rejuvenation, continue to be the most effective in the arsenal of tools against chronological dermal corrugation and vascular deterioration. Micro-needling is a popular choice because of the accelerated rate of change to the dermis achieved with minimal to no scarring or fibrosis development. However, this cosmetic procedure creates temporary discolouration and microinflammation that manifests discomfort and redness or soreness for several days post procedure. Hence, candidates will benefit from improved comfort following the procedure.

Methods: Five candidates participated in a micro-needling procedure to the face and applied the post-procedural hydration mask (Maskād™). At the first and fifth minute the candidates were asked to rate their pain according to a Likert scale from one to five, with five being most painful and one being no pain.

Results: The candidates confirmed that pain was resolved at five minutes post procedure. This contrasts with the normal clinical outcome where pain persists for several days post procedure (see other case studies).

Conclusion: The post procedural mask significantly reduced discomfort to the candidates of the micro-needling procedure.

TL21-3

Introduction

In the modern world, the process of dermal ageing for the average candidate is accelerated beyond chronological age, because of the nutritional disadvantage associated with starch subsistent society. The dermatological effects of lifestyles that promote cardiovascular diseases exaggerate the effects of extrinsic stressors, such as UV-radiation, pollution, and autoimmune challenge. Consequently, people in mid-life are perceiving that their external age is not consistent with the projected truth. Considering this, amelioration of the long-term effects of extrinsic insult to the dermis is considered a significant milestone in achieving both physical and psychological health¹, because both are listed as objectives of 'successful ageing'. Aesthetic procedures are therefore in place to help realign the individual's external with the internal self.

Micro-needling mimics skin injury without rupturing the dermis. The extracellular matrix of the dermis remains intact, which prevents cellular proliferation and scar formation, yet the metalloproteinases (MMPs) that are expressed in response to injury, are expressed by

micro-needling. Because of the expression of MMPs that enzymatically slice proteins, signalling peptides are produced². The outcome is a dermal restructuring episode that rejuvenates collagen and maintains the high collagen-1 to collagen-3 ratio of normal skin.

Some of the side-effects of micro-needling include micro-inflammation, soreness and redness, which can make candidates of the procedure feel uncomfortable, both physically and in a social context where skin redness changes their appearance slightly. To attenuate this effect, post procedural topicals should aim first to hydrate as efficiently as possible to streamline biochemical processes involved in tissue recovery and repair³.

Unfortunately, microinflammation occurs in most candidates post procedure, due to the release of inflammatory mediators from micro injury. The outcome includes vasodilatation, erythema, edema and discomfort or pain⁴.

In the current case study, a mask that delivers pure hydration into the dermis was used to enact post procedural pain relief.



Figure 1. Subject following microneedling (left), wearing Maskād 5 minutes post procedure (middle) and following removal of Maskād (right).

Method

Five female subjects underwent facial micro-needling at a depth of 1.5mm. The procedure resulted in some pinpoint bleeding and local redness. Immediately following the procedure subjects were asked to grade the level of pain on a 5-point Likert scale with 1 being very minor pain, 2 being mild pain, 3 being moderate pain, 4 being moderate to

severe pain and 5 being extremely severe pain. Following this initial assessment (PRE), a hydrogel mask was applied to the face and the subject was asked to rate pain on the same scale 1 minute and 5 minutes following application of the mask.

Results

Subjective and objective evaluation immediately after treatment, following the application of the hydrating mask demonstrated a pronounced positive aesthetic. Redness and heat retention is reduced as perceived by the naked eye.

Assessment according to the Likert scale demonstrates that all five candidates perceived significant changes to pain with application of the mask. Pain is not felt after 5 minutes of applying the mask. The normal clinical outcome includes tenderness, discomfort and pain for several days post procedure (see other case studies).

Discussion

Because the first few hours following treatment are considered most critical in achieving a desirable long term aesthetic outcome, hydration with purified water, in the absence of extraneous ingredients that risk granuloma formation, is a recommended initiative. Not only is the candidate protected against undesirable side effects of treatment, but the candidate is rewarded with a reassuring self-portrait, i.e., if the candidate witnesses less redness, experiences less pain and discomfort they will feel reassured of the success of the treatment.

Unfortunately, micro-needling is associated with pain and discomfort. Thereafter redness to the face can make the candidate uncomfortable about their physical appearance. The current case study demonstrates that advanced moisturization post-procedure has a significant effect on the short-term dermal phenotype and the quality of the experience. Thus, by providing candidates with an improved post procedural experience, the use of moderately invasive procedures in aesthetic dermatology is likely to grow. The perception that it is safe and convenient is a necessary milestone.

PAIN Score (1-5)

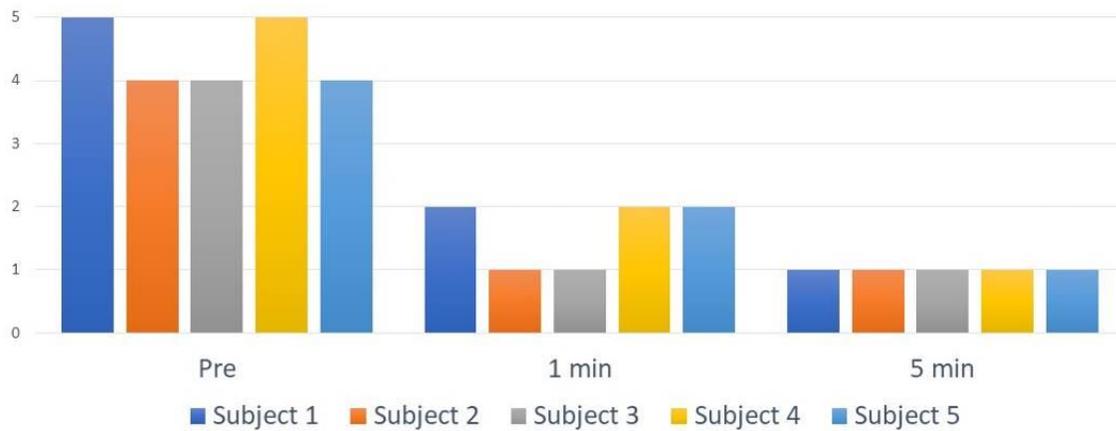


Figure 1 – Post procedural pain assessment, using the 5-point Likert scale.

Conclusion

The post treatment 'in office' hydrating mask dramatically attenuated the discomfort associated with micro-needling. Pain was completely resolved after five minutes.

References

1. Sadgrove, N. J., Oblong, J. E., & Simmonds, M. S. J. (2021). Inspired by vitamin A for anti-ageing: Searching for plant-derived functional retinoid analogues. *Skin Health and Disease*, e36.
2. Sadgrove, N. J., & Simmonds, M. S. (2021). Topical and nutraceutical products for healthy hair and dermal anti-aging using 'dual-acting' (2 for 1) plant-based peptides, hormones, and cannabinoids. *FASEB BioAdvances*, 3, 601-610.
3. Sawyer, J., Febbraro, S., Masud, S., Ashburn, M. A., & Campbell, J. C. (2009). Heated lidocaine/tetracaine patch (Synera™, Rapydan™) compared with lidocaine/prilocaine cream (EMLA®) for topical anaesthesia before vascular access. *British journal of anaesthesia*, 102(2), 210-215.
4. MacKay, Douglas J., and Alan L. Miller. "Nutritional support for wound healing." *Alternative Medicine Review* Nov. 2003: 359+. *Academic OneFile*. Web. 15 Feb. 2016.
5. Liu, R. M., & Desai, L. P. (2015). Reciprocal regulation of TGF- β and reactive oxygen species: A perverse cycle for fibrosis. *Redox biology*, 6, 565-577.