

LETTER TO THE EDITOR

Effects of a facial mask containing zinc oxide-based cream on improving post-laser skin care

To the Editor,

After laser treatment, the skin barrier can be disrupted, resulting in changes in skin parameters such as transepidermal water loss (TEWL) and skin hydration. This disruption can cause dryness, redness, and increased sensitivity in the treated area. To prevent these adverse effects, it is important to implement a proper post-laser skin care regimen that can help repair and restore the skin barrier.¹

A patient with acne scars (icepick and rolling scars) was treated with the non-ablative 1550nm Er-Glass fractional laser (Sellas evo) at our clinic. TEWL and skin hydration values were taken before and immediately after the treatment using Tewameter® TM 300 and Corneometer® CM 825 (Courage & Khazak). Immediately following laser treatment, a facial mask containing a zinc oxide-based cream (AL mask, Dr.p&H Co., Ltd.) was applied to the patient's face for 10min. Ten minutes after removing the facial mask, the TEWL and skin hydration were measured once again. In addition, the patient rated skin redness, edema, and burning sensations immediately after laser treatment and after post-laser care with the facial mask using a 5-point Grading Scale (0=clear, 1=almost clear, 2=mild, 3=moderate, 4=severe). After laser treatment, the TEWL was increased and skin hydration was decreased compared to that measured before treatment. However, 10min after applying the facial mask, the TEWL was decreased and skin hydration was increased and returned to the values measured at baseline. The patient reported much improved redness, edema, and burning sensations after post-laser care using the facial mask (Figures 1 and 2). Informed consent was obtained from the patient.

Our case shows the effect of post-laser skin care using a facial mask containing a zinc oxide-based cream after the use of a non-ablative fractional laser. After applying the facial mask, the TEWL

was reduced, hydration was increased, and erythema, edema, and patient discomfort were improved. These findings suggest that the use of this type of facial mask may be beneficial for post-laser skin care.

It is well known that the epidermal barrier is disrupted after laser treatment, and in particular, the TEWL is increased and hydration is decreased, which triggers inflammation.² Even with non-ablative lasers such as non-ablative 1540-nm Fractional Erbium: Glass Laser used in this study, the average downtime is known to be 24 to 48h after laser treatment.^{3,4} Therefore, appropriate post-laser skin care using various products containing active ingredients with anti-inflammatory, antioxidant, and calming effects are an important component of the laser treatment plan. Among various products, facial masks are especially advantageous because they provide instant and continuous hydration and cooling effects.² The facial mask used in this study contained a variety of active ingredients including zinc oxide, allantoin, and panthenol, which alleviate inflammation and promote wound healing.

Zinc oxide, the main active ingredient of the facial mask used in this study, has anti-inflammatory properties. Previous studies showed that the topical treatment of wounds in a mouse model with zinc oxide nanoparticles containing nanocomposites demonstrated anti-inflammatory and antioxidant capacities, increased collagen deposition, and accelerated wound closure.⁵ Allantoin also has wound-healing, anti-irritation, and hydration effects when applied topically.⁶ Panthenol is one of the most popular ingredients in scar treatment gels and is known to modulate the expressions of several genes crucial for wound healing.⁷

In conclusion, our case report showed that post-laser skin care using a facial mask containing a zinc oxide-based cream helped restore the disrupted skin barrier and improved laser



FIGURE 1 Clinical photographs of the patient before and after applying a facial mask containing a zinc oxide-based cream. Skin erythema and edema were significantly improved after applying the facial mask.

treatment-related downtime and patient discomfort. These results were similar to previous studies that evaluated the efficacy and safety of ointments or cream-type moisturizers for wound healing after laser resurfacing.⁷ Facial masks have advantages over creams or ointments because they are easy to apply and can have instant

effects on the skin.⁸ Improving the ability of patients to return to their daily lives and making them less self-conscious will improve patient satisfaction and their quality of life. From a clinician's perspective, improved results will lead to higher patient satisfaction and thus optimized outcomes.

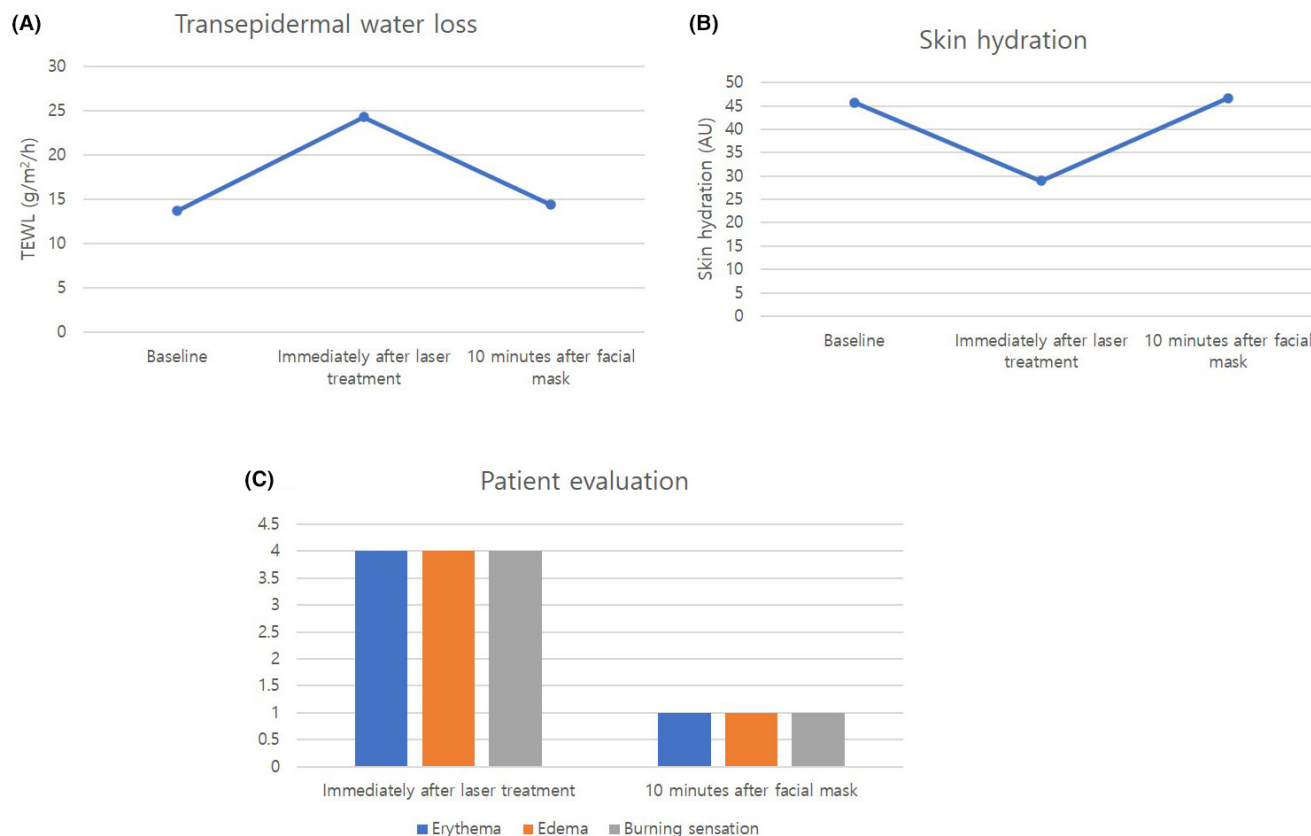


FIGURE 2 (A, B) Changes in TEWL and skin hydration at baseline, after laser treatment, and after applying a facial mask with a zinc oxide-based cream which was measured 10 min after removing facial mask. (C) Results of the patient evaluation performed immediately after laser treatment and after applying a facial mask with a zinc oxide-based cream.

KEYWORDS

allantoin, panthenol, post-laser skin care, wound healing, zinc oxide

CONFLICT OF INTEREST STATEMENT

None declared.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal.

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