

# EVALUATION OF THE EFFICACY AND SAFETY OF A HIGH MOLECULAR MUCOPOLYSACCHARIDE MEDICAL DRESSING ON SKIN BARRIER REPAIR AFTER PICOWAY LASER TREATMENT

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## INTRODUCTION

Picoway laser treatment is efficient, not time consuming, well tolerated and has a short downtime. It is used in the treatment of various skin disorders, including tattoo, pigmentary skin diseases, photoageing and acne scars.<sup>1</sup> However, it also disturbs the skin barrier function and causes skin damage during treatment. Therefore, repairing as soon as possible lesions after laser treatment and alleviating clinical symptoms is a major concern.

Hyaluronic Acid (HA), also known as Sodium Hyaluronate or Hyalurate, is a linear mucopolysaccharide consisting of a disaccharide unit  $[[\beta(1,4)\text{-GlcUA-}\beta(1,3)\text{-GlcNAc}]_n$  repeated with glucuronic acid and acetyl glucosamine. HA absorbs water up to 10,000 times its own weight, and is one of the most moisturizing substances found in nature, which has an anti-inflammatory effect, can accelerate wound healing, tissue regeneration, immune regulation, anti-cancer, anti-proliferation, wrinkle removal, anti-aging and skin repair.<sup>2,3</sup>

## OBJECTIVES

This study assessed the efficacy and safety of a high molecular mucopolysaccharide medical wound dressing in skin repair after Picoway laser treatment.

## MATERIAL & METHODS

Subjects having undergone Picoway laser treatment were randomly assigned to receive the medical wound dressing and a hospital cream preparation or the cream preparation alone. Subjects were asked to apply the products immediately after the laser treatment twice a day in the morning and evening for 7 days. The wound dressing was to be kept for 20 minutes before removal and application of the cream preparation.

Subjects were evaluated at baseline point before laser treatment (V0), half an hour after treatment (V1), 3 (V2) and 7 days after treatment (V3).

Changes in skin redness, porphyrins, pores, skin texture and brown spots as well as in skin hydration and transepidermal water loss (TEWL) were instrumentally assessed.

## RESULTS

- A total of 30 subjects were recruited.
- 16 subjects with a mean age of  $35.7 \pm 3.75$  years were enrolled in the experimental group; 81.3% were females and 75.00% had freckles. 14 subjects with a mean age of  $35.9 \pm 3.28$  years were enrolled in the control group; 78.6% were females and 78.6% had freckles. Details are given in Table 1.
- Skin redness, texture and brown spots in the medical dressing group had significantly ( $p < 0.05$ ) more improved than in the control group after 7 days (V3) treatment (Table 2).
- Skin hydration had significantly ( $p < 0.05$ ) increased in the medical dressing group at all post-V0 visits (Figure 1)
- TEWL over time was significantly ( $p < 0.05$ ) less important with the medical dressing than with the control product (Figure 2). Both products were well tolerated.

Table 1  
DEMOGRAPHIC AND BASELINE DATA

	Medical dressing group N=16	Control group N=14
Age (years)	$35.7 \pm 3.75$	$35.9 \pm 3.28$
Gender, n(%)		
Male	3 (18.8%)	3 (21.4%)
Female	13 (81.2%)	11 (78.6%)
Facial skin conditions, n(%)		
Chloasma	4 (25.0%)	3 (21.4%)
Freckles	12 (75.0%)	11 (78.6%)
Mean disease duration (years)	$4.2 \pm 1.14$	$4.1 \pm 1.18$

Figure 1  
SKIN HYDRATION OVER TIME

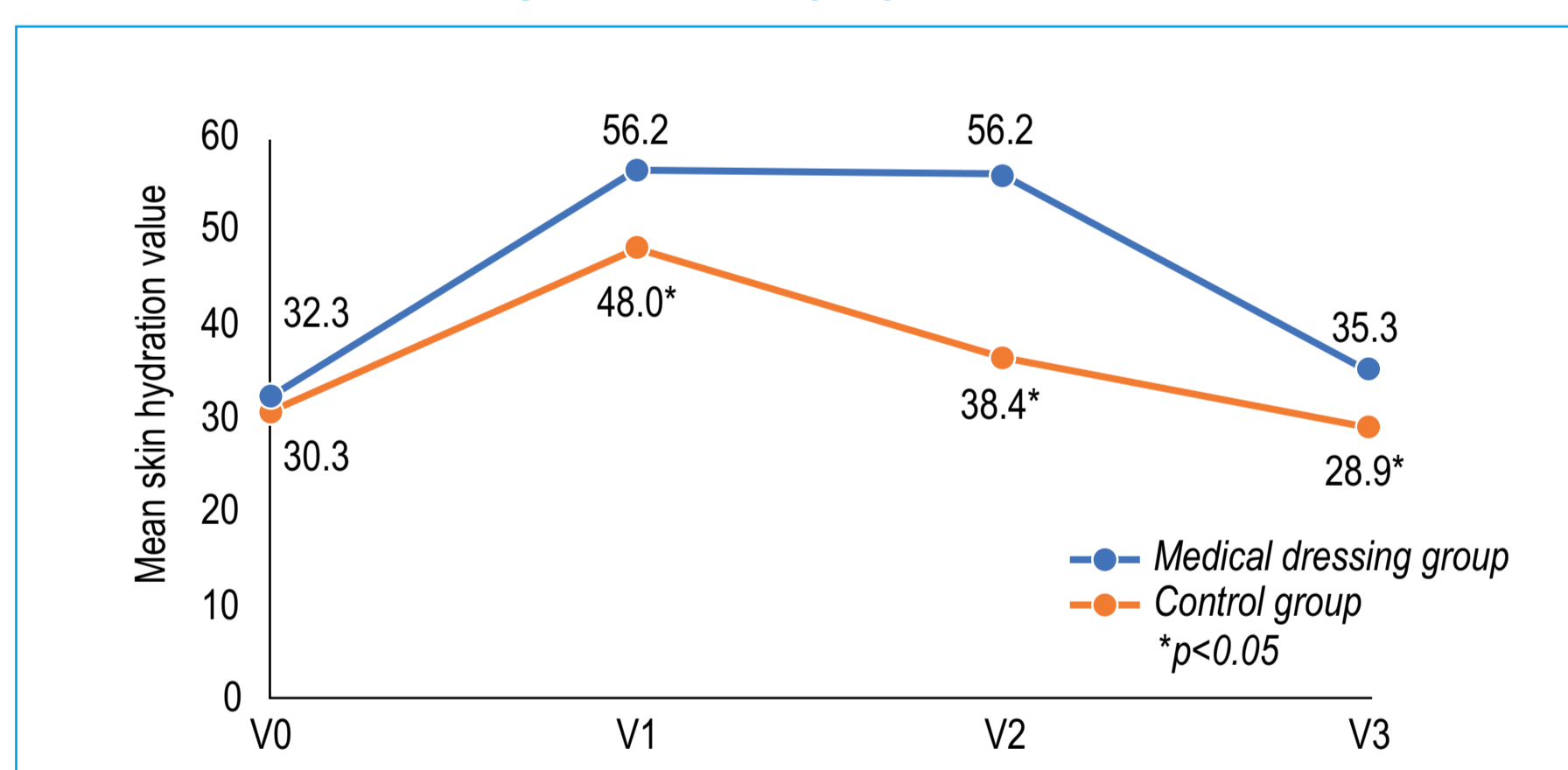
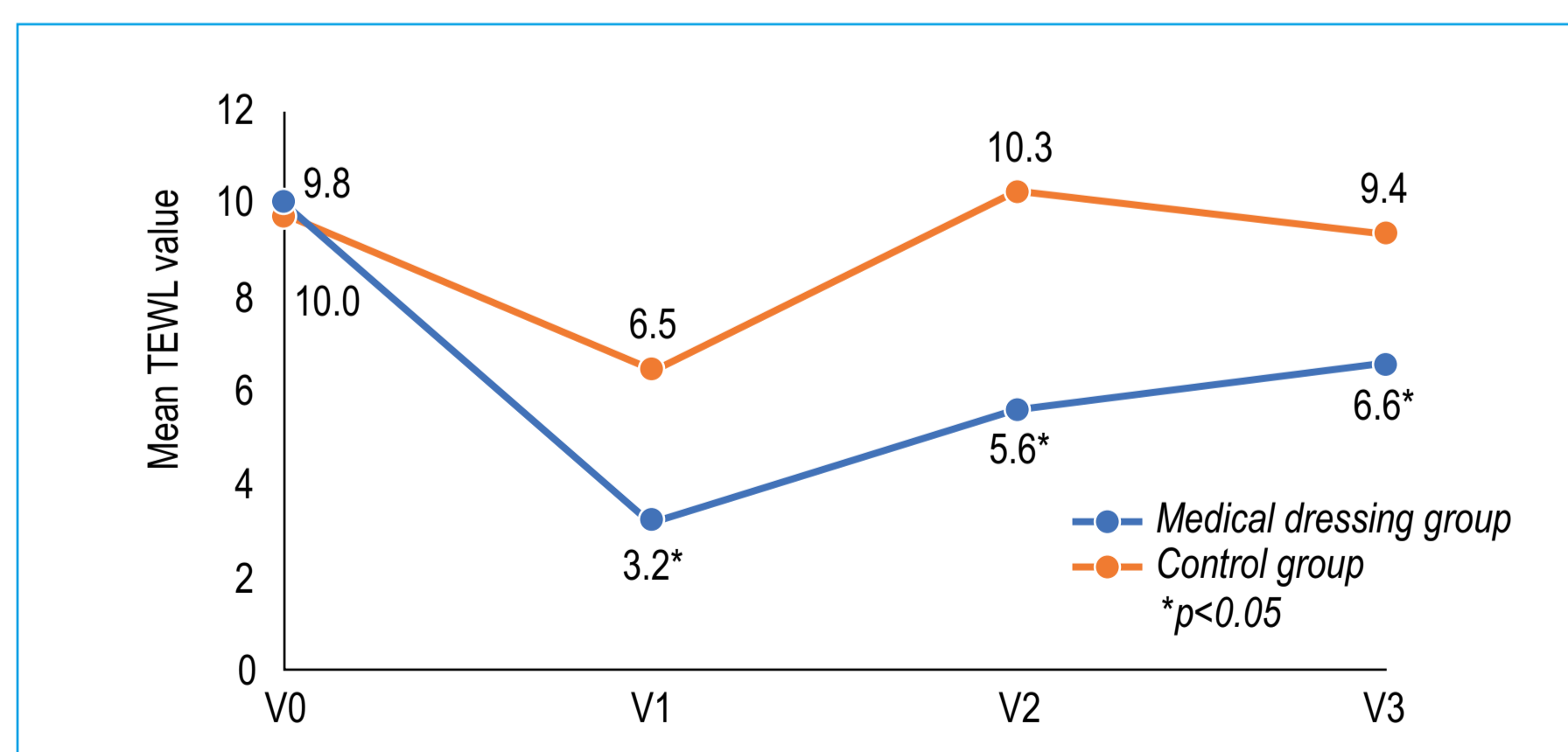


Table 2  
SKIN QUALITY INDICATORS

Indicators	Medical dressing group N=16				Control group N=14			
	V0	V1	V2	V3	V0	V1	V2	V3
Redness	40	43	46	40*	41	46	55	35
Porphyrins	55	51	57	51	57	50	54	58
Pores	42	39	49	44	47	43	54	48
Texture	86	76	81	84*	86	71	78	74
Brown spots	18	19	23	22*	16	16	21	16

Figure 2  
TEWL OVER TIME



\* Significantly different from the control group at the same time,  $p < 0.05$

## CONCLUSIONS

The tested medical dressing is safe and offers an effective repair option after Picoway laser. Its use after Picoway laser treatment has a moisturizing effect, promotes the recovery of the skin barrier and limits acute inflammatory reaction.

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Key words:  
Hyaluronic acid picoway laser, skin repair, mucopolysaccharide medical wound dressing



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