

## ORIGINAL RESEARCH

# Assessment of efficacy Monochromatic Excimer Light in the treatment of psoriasis

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### ABSTRACT

**Background:** Psoriasis is a chronic autoimmune skin disorder characterized by the rapid growth of skin cells, leading to the formation of thick, scaly patches. The present study was conducted to assess the clinical efficacy of Monochromatic Excimer Light (MEL) in the treatment of psoriasis. **Materials & Methods:** 74 cases of psoriasis of both genders were treated by MEL, two sittings per week. PSI was calculated before and after treatment which was derived from the standard Psoriasis Area and Severity Index (PASI) by omitting the area, thus assigning a score of 0-4 (0=none; 1=mild; 2=significant; 3=moderate; 4=severe) for erythema, induration and desquamation. **Results:** Out of 74 patients, 30 were males and 44 were female. Common site was scalp seen in 35, trunk in 38, palms in 12, upper limb in 67 and lower limb in 71 cases. Outcome was excellent in 62, good in 10 and moderate in 2 cases. The difference was significant ( $P < 0.05$ ). before treatment PASI score was 7.4 and after treatment was 1.3. The difference was significant ( $P < 0.05$ ). **Conclusion:** MEL is a safe and efficient treatment for plaque psoriasis, and the results are primarily dependent on the patient's skin phototype and the anatomic location of the lesion.

**Keywords:** Autoimmune, Psoriasis, skin disorder

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### INTRODUCTION

Psoriasis is a chronic autoimmune skin disorder characterized by the rapid growth of skin cells, leading to the formation of thick, scaly patches.<sup>1</sup> It is a long-lasting condition that can vary in severity, from small localized patches to complete body coverage.<sup>2</sup> Psoriasis is not contagious, and its exact cause is still not fully understood, though it involves an interplay of genetic, environmental, and immune system factors.<sup>3</sup>

Plaque Psoriasis (Psoriasis Vulgaris) is the most common form, accounting for about 80-90% of cases. Symptoms are raised, red patches covered with a silvery-white buildup of dead skin cells (scales).<sup>4</sup> These patches, or plaques, are often itchy or sore and typically appear on the elbows, knees, scalp, and lower back. Guttate Psoriasis often occurs in children and young adults, sometimes after a bacterial infection like strep throat. Symptoms are small, drop-shaped lesions on the trunk, arms, and legs. These spots are usually not as thick as plaque psoriasis.<sup>5</sup>

For mild disease, topical medications are usually utilized, phototherapy for moderate disease, and systemic medications for severe disease. A kind of

ultra violet lamp known as a monochromatic excimer light (MEL) uses argon, krypton, xenon, and halogen among other noble gases.<sup>6</sup> High pressure combined with the right electrical stimulation results in the pseudo-molecule MEL, which has UV laser light activity. MEL is a new type of UV-B light used in dermatology to treat conditions like vitiligo, alopecia areata, psoriasis, atopic dermatitis, and mycosis fungoides in the patch stage.<sup>7</sup> The present study was conducted to assess the clinical efficacy of Monochromatic Excimer Light (MEL) in the treatment of psoriasis.

### MATERIALS & METHODS

The present study was conducted on 74 cases of psoriasis of both genders. All gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. Psoriasis history, medical history, treatments received for psoriasis and other treatments were recorded for each patient. All patients were treated by MEL, two sittings per week. PSI was calculated before and after treatment which was derived from the standard Psoriasis Area and Severity Index (PASI) by omitting

the area, thus assigning a score of 0-4 (0=none; 1=mild; 2=significant; 3=moderate; 4=severe) for erythema, induration and desquamation. Results thus

obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

**RESULTS**

**Table I Distribution of patients**

Total- 74		
Gender	Male	Female
Number	30	44

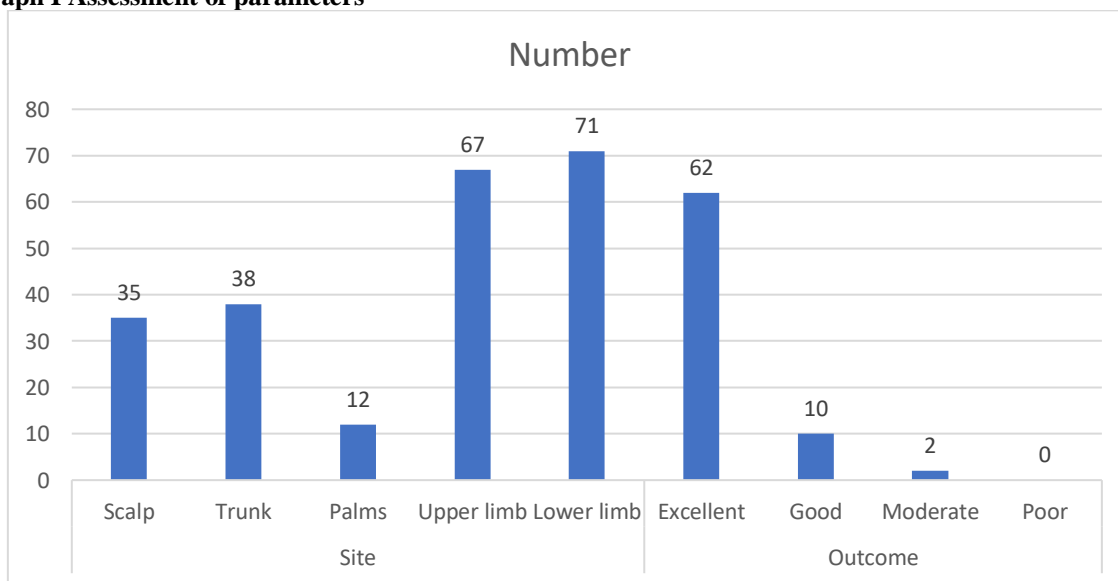
Table I shows that out of 74 patients, 30 were males and 44 were female.

**Table II Assessment of parameters**

Parameters	Variables	Number	P value
Site	Scalp	35	0.85
	Trunk	38	
	Palms	12	
	Upper limb	67	
	Lower limb	71	
Outcome	Excellent	62	0.01
	Good	10	
	Moderate	2	
	Poor	0	

Table II, graph I shows that common site was scalp seen in 35, trunk in 38, palms in 12, upper limb in 67 and lower limb in 71 cases. Outcome was excellent in 62, good in 10 and moderate in 2 cases. The difference was significant (P< 0.05).

**Graph I Assessment of parameters**



**Table III Assessment of PASI**

PASI	Mean	P value
Before treatment	7.4	0.01
After treatment	1.3	

Table III shows that before treatment PASI score was 7.4 and after treatment was 1.3. The difference was significant (P< 0.05).

**DISCUSSION**

Psoriasis is believed to result from an overactive immune system that causes inflammation and accelerated skin cell turnover.<sup>8,9</sup> This leads to the buildup of skin cells on the surface, forming the characteristic scales and plaques.<sup>10,11</sup> A family history

of psoriasis increases the risk, infections such as strep throat or skin infections, stress can trigger or exacerbate symptoms, cold weather tends to worsen the condition, injury to the skin such as cuts, scrapes, or sunburn (Koebner phenomenon), certain drugs, like lithium or beta-blockers, can trigger psoriasis, alcohol

and smoking can exacerbate the condition, hormonal changes particularly in women during puberty, pregnancy, or menopause.<sup>12,13</sup> The present study was conducted to assess the clinical efficacy of Monochromatic Excimer Light (MEL) in the treatment of psoriasis.

We found that out of 74 patients, 30 were males and 44 were female. Mohamed et al<sup>14</sup> evaluated the clinical efficacy and safety of Monochromatic Excimer Light (MEL) in the treatment of psoriasis. Ninety Egyptian psoriasis patients with plaque-type psoriasis were treated with MEL twice a week, for a total of 24 sessions or until complete improvement. The Psoriasis Severity Index (PSI) was assessed for each patient. At the final visit, 96/360 (26.67%) patches of psoriasis showed complete clearance, 75/360 (20.83%) patches achieved more than 75% improvement, 132/360 (36.67%) patches achieved 51-75% improvement and 57/360 (15.83%) patches achieved 26-50% improvement. The best result occurred on the trunk followed by lower limbs, upper limbs, palms and soles than the scalp. There was inverse statistical correlation between the percentage of improvement and skin phototype and no correlation with patient's age, sex or duration of disease. Side effects reported were erythema in 45 patches, post inflammatory hyperpigmentation in 102 patches, perilesional skin was covered by protective sheet, so no side effect occurred. No recurrence was observed six months after treatment.

We found that common site was scalp seen in 35, trunk in 38, palms in 12, upper limb in 67 and lower limb in 71 cases. Outcome was excellent in 62, good in 10 and moderate in 2 cases. Goldinger SM et al<sup>15</sup> determined the response of psoriasis lesions to the 308-nm excimer laser compared to 311-nm UVB phototherapy. They selected psoriasis plaques of 16 patients were treated with the excimer laser whereas the rest of the body was treated with UVB narrow-band phototherapy. A modified PASI score was used to evaluate the results. After 12 treatments, 15 patients were evaluated. In 2 patients no difference between the two body sides was observed. In 9 patients the laser-treated lesions showed better results, whereas in 4 patients the side treated with 311-nm UVB showed more clearing. The mean reduction in PASI score was 5.6 and 4.9, respectively (difference not significant). The use of the 308-nm xenon chloride excimer laser is an additional effective therapeutic option for the treatment of psoriasis vulgaris.

We found that before treatment PASI score was 7.4 and after treatment was 1.3. Kollner K et al<sup>16</sup> enrolled fifteen patients with plaque psoriasis. Three different psoriatic lesions were treated with the 308-nm excimer laser, the 308-nm excimer lamp or 311-nm narrowband UVB three times per week. Sixteen patients were enrolled in the second regime. Two plaques were treated with the 308-nm excimer laser or with the 308-nm lamp with an accelerated scheme three times per week. Using Friedman analysis, the

PSI scores did not show a statistically significant difference ( $P > 0.05$ ) comparing 308-nm laser therapy, 308-nm lamp therapy and 311-nm narrowband therapy after 10 weeks in the first regime. The mean number of treatments to achieve clearance was 24. With the accelerated scheme, clearance could be achieved with fewer treatments and with half the cumulative dose of the first regime. Nevertheless, the side-effects such as blistering and crusting were also increased.

The shortcoming of the study is small sample size.

## CONCLUSION

Authors found that MEL is a safe and efficient treatment for plaque psoriasis, and the results are primarily dependent on the patient's skin phototype and the anatomic location of the lesion.

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