

## Psoriatic lesion regression – thermographic evaluation

by Anna Zalewska<sup>1</sup>, Grzegorz Gralewicz<sup>2</sup>, Grzegorz Owczarek<sup>2</sup>, Bogusław Więcek<sup>3</sup>

<sup>1</sup> *Department of Psychodermatology, Medical University of Lodz, Poland*

<sup>2</sup> *Central Institute for Labour Protection – National Research Institute, Warsaw, Poland*

<sup>3</sup> *Institute of Electronics, Computer Thermography Group, Technical University of Lodz, Poland*

Psoriasis vulgaris is a chronic inflammatory skin disease characterized by hyperkeratosis, dermal inflammatory infiltrate and increased angiogenesis. The aim of the present study was to assess usefulness of thermography in psoriatic lesion regression.

Ten in-patients with psoriasis vulgaris were included in the study. Most representative psoriatic lesions located on the trunk, back and upper limbs together with lesion-free areas designated at least 5 cm from the edge of an examined psoriatic plaque were selected for evaluation. The patients did not take any systemic treatment in the last 2 weeks and local ones, except for emollients for the last week. ThermaCam INFRAMETRICS 290E thermocamera with temperature resolution of 0.1 °C was employed. Both visual and thermal images, derived from four body regions i.e. chest, back, upper and lower limbs of lesional and lesion-free areas were recorded and analyzed. Each plaque was estimated for erythema, desquamation and infiltration (each ranged from 0 – absent to 4 – most pronounced) before treatment (I), on 7th day of treatment (II) and on 14th day of treatment (III).

A significant decrease in temperature measurement was observed along with efficient treatment both over psoriatic plaques and lesion-free skin. There was also a significantly increased temperature over psoriatic plaques in comparison to lesion-free skin. Along with successful treatment, there was a significant decrease in erythema severity in all the examined areas together with infiltration improvement on the chest, upper and lower limbs. There was a negative correlation between temperature measurement and desquamation on the chest ( $r=-0.63$ ,  $p=0.05$ ). Also a negative correlation between temperature and infiltration was noted on the back ( $r=-0.72$ ,  $p=0.02$ ) and lower limbs ( $r=-0.64$ ,  $p=0.05$ ).

An example of psoriatic lesions located over the back and their regression, both clinical and thermographical is presented in fig.1.

It is conceivable to speculate that temperature measurement could serve as a marker of disease remission. What is more, lesion-free skin in psoriatic patients seems to be somewhat involved in the pathological process in psoriasis suggesting that it is „prepared” for lesion progression, which is reflected by the temperature increase.

Thermogram	Photo	Exam. date
		1 <sup>st</sup> week
		2 <sup>nd</sup> week
		3 <sup>rd</sup> week

Fig. 1. Thermograms and photos demonstrating regression of psoriatic skin lesions.