

# European League Against Rheumatism Annual European Congress of Rheumatology

Thermography after cold challenge may help assess juvenile Raynaud's syndrome

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The use of thermography may aid in the assessment of pathological microvascular behaviour of paediatric patients with Raynaud's syndrome, according to research from Italy.

Researchers evaluated 20 children with primary or secondary Raynaud's syndrome (RS), eight patients with acrocyanosis and 13 healthy participants. Each child participated in a cold challenge and underwent thermographic imaging after acclimation to hand exposure at 23° C for 15 minutes. Wearing gloves, the hands were then immersed into a 15° C water bath for 1 minute. Ten minutes following the cold challenge, repeated images of the hands at 1-minute intervals were obtained.

Twelve measurements of temperature of the dorsal aspect of metacarpophalangeal joint and of the distal interphalangeal joint of each finger excluding the thumb were obtained. The temperature was measured independently by two clinicians. Interobserver agreement was evaluated for each hand image using an interclass correlation coefficient, and the mean value of each clinician's temperature assessment, and the result was high (0.930.96).

The metacarpophalangeal and interphalangeal joint of both the right and left hands were assessed to determine the average variation in temperature throughout the series of images from each child using two time intervals,  $T_n - T_{n-1}$  and  $T_n - T_{pre}$  in which  $n$  represents the minutes of observation and  $pre$  is equal to the baseline measurement. The mean longitudinal thermal gradient was used to calculate the difference between patients with RS and acrocyanosis in each finger at each time point observed.

The temperature variations between children with both RS and acrocyanosis differed significantly from the rewarming trends seen in children without microvascular alterations.

"This study demonstrates, for the first time in the pediatric age, that thermography after cold challenge has an excellent interobserver reproducibility and it is reliable in identification of pathological microvascular behaviour," the researchers wrote. –

by Shirley Pulawski

Reference:

Cappella M, et al. Paper #OP0307. Presented at: European League Against Rheumatism Annual European Congress of Rheumatology. June 10-13, 2015; Rome.

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