Introduction: To evaluate the influence of the skin aging critical level on the development of objective thermal protocols, an improved integrated tensiometric approach was developed named as Tensiometric Versus Skin (TVS) modeling.

TVS modeling: (i) exploits the structure-surface correlations which are characteristic of all systems; (ii) applies the principle of permutability of the tensiometric technique, according to which unknown solids can be characterized by their known surface characteristics, and vice versa; (iii) is carried out in a non-invasive way by a tensiometric contact angle method.

TVS modeling involves TVS skin test as an objective evaluation marker of the epidermal functional state, and TVS mud index as an evaluation marker of thermal matrices.

Objectives: On the basis of these scientific evidences, the combined action of TVS mud index with TVS skin test was investigated to develop objective dose-response thermal protocols.

The first “OTP-TVS thermal protocol” was developed in the Euganean thermal area where fangotherapy is widely practiced.

Materials and Methods: Native Euganean thermal mud was firstly characterized from the chemical and mineralogical point of view. After maturation in controlled conditions, TVS mud index was obtained by contact angle method using PFPE as reference standard liquid, and finally, by repeated TVS skin test before and after a dose of fango application, the fango effectiveness was performed.

Results: The schematic OTP-TVS protocol pathway is shown in Figure 1.

Keywords: TVS modeling, TVS mud index, TVS skin test, OTP-TVS thermal protocol

Bibliography


Natural or semi-synthetic matrix [Fango]

Maturation process

TVS mud index

Fango → tensiometricprint

Skin → tensiometricprint

Skin reactivity $[Rs]$  
Increase of skin energy $[mN/m]$  
Epidermal hydration $[CPW\%]$  

Evaluation: TVS skin test

Typical application

OTP-TVS thermal protocol

Figure 1