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Effect of hydration methods on hydration level of human third-degree burn scar

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Background and Aims: Permeation of drugs through burn scar is very critical for local antimicrobial treatment of burn wound. Our Previous studies have shown that hydration state affects drug permeation through burn scar to a great extent. The present study was designed to investigate effect of different hydration methods on burn scar's hydration level.
Methods: Human third-degree burn scar samples were used in this study. Burn scars were hydrated in home-made diffusion cell and Ependorf vials to achieve fully and semi- hydrated states, during 1, 2, 3, 18 and 24 hours. Hydration level was measured with thermogravimetric analysis (TGA) over 25 °C- 200°C at heating rate of 10 °C/min.
Results: Results showed that hydration type and hydration time can greatly affect hydration level. Also hydration level in semi-hydrated scars was reduced over time.
Conclusions: As hydration level is very important in permeability of scars. These findings will be clinically important and can be used to adjust treatment methods of burn wounds.

Keywords: Burn scar; Hydration; Thermal analysis