

Hydrotherapy in the rehabilitation process in burned patients: a literature review

Cruz P⁽¹⁾, Amaral S⁽¹⁾, Ribeiro AM⁽¹⁾, Rodrigues M M⁽²⁾, Cantista P⁽¹⁾

⁽¹⁾Serviço de Medicina Física e de Reabilitação - Centro Hospitalar Universitário do Porto, Portugal

⁽²⁾Centro de Reabilitação Norte, Hospital Dr. Ferreira Alves, Vila Nova de Gaia, Portugal
pedro.cantista@gmail.com

Introduction: Hydrotherapy is defined as the use of water for medical purposes. When we use specifically mineral water, steam, gases or peloids we apply the terms “crenotherapy” or “balneotherapy”. Since the first half of the last century, water baths have been used for burns treatment, including scalds care and pain alleviation, with modifications over time. Water, heated and enriched with specific minerals, to which antimicrobial solutions can be associated, has been applied through immersion baths, currently surpassed by water showers / jets, in order to reduce the risk of transmission of infections. Few examples of the use of thermal waters have also been reported.

Objective: To know which benefits and limitations of the applicability of hydrotherapy in the rehabilitation process in burnings have been pointed.

Material and Methods: A bibliographical review was performed using several search engines, namely PubMed, Medline, Cochrane, PEDro, Scielo and Embase.

Results: In our literature review, it seems that in the rehabilitation of burned patients the use of hydrotherapy appears to have benefit in the cleaning, disinfection and removal of exudates from the burned surface, wound debridement, hypertrophic skin combat and reduction of inflammatory signs, with consequent acceleration in the healing process. These effects resulting from the rich mineral composition of the water. The dynamic effect of the high hydrostatic pressures used seems to contribute to the reduction of pruritus and analgesia and to the restructuring of the collagen and elastin fibres allowing the formation of more malleable skin. The improvement in the skin's appearance leads to an increase in self-esteem and functionality in the activities of daily living, increasing the adhesion and consequently the probability of cure.

However, the loss of the skin barrier associated with an immune depression in these patients renders them more vulnerable to infections, especially by the proliferation of opportunistic pathogenic bacteria transmitted through the hot springs in the open and deep wounds. The prevalence of organisms seems to differ between countries and even between hospitals of the same country, taking into account local

protocols and infection control policies. However, infections by Gram-bacteria, namely *Pseudomonas aeruginosa*, appear as the most frequently acquired with the use of hydrotherapy, leading to delayed healing, loss of skin graft and increased morbidity and mortality. Fever, fatigue and development of hydro electrolytic disorders may also be present.

Conclusion: Despite all the modifications that hydrotherapy has undergone over the last decades, there is scant evidence of the benefits of its use in the rehabilitation process in burned patients, as well as in the quantification of the risks associated with this practice. Thus, for clinical use, it is imperative to establish guidelines based on evidence.

It is also essential to establish infection protocols as well as regular monitoring of the equipment used in order to identify sources of contamination and minimize risks.

Keywords: Hydrotherapy, Crenotherapy, Balneotherapy, Rehabilitation, Burns.