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Anti-inflammatory effect of mud-bath applications on adjuvant arthritis in rats

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OBJECTIVE: The real effects of mud-bath applications on the inflammatory process are still not clarified. We studied these effects on rat adjuvant-induced arthritis.

METHODS: Arthritis was induced in 30 rats by subplantar injection of Freund's complete adjuvant (FCA) into the right hind paw. Ten days after FCA injection, the rats were randomized in 3 groups of 10 each: the first one was submitted to a cycle of mud-bath applications, the second one was treated with indomethacin, the third one received only saline per os (control group). The paw volume, measured by plethysmometry, and the serum levels of TNFalpha and IL-1beta were considered as evaluation parameters.

RESULTS: FCA injection caused a progressive enhancement of paw volume and a rapid increase of TNFalpha and IL-1beta serum levels. After the randomization, mud-bath applications reduced inflammation and at the end of the treatment the paw volume and the TNFa and IL-1beta serum levels were significantly tapered in comparison to the controls ($p < 0.01$).

CONCLUSION: The results of the study suggest an anti-inflammatory effect of mud-bath applications on adjuvant arthritis in rats. These results could explain the beneficial effects of thermal treatments observed in some inflammatory rheumatic diseases.

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