

Phase change material to treat Buruli ulcer through heat treatment (Pilotstudie)

Initiative: Wissen für morgen – Kooperative Forschungsvorhaben im subsaharischen Afrika (beendet)

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Buruli ulcer, caused by *Mycobacterium ulcerans*, is a devastating mycobacterial disease, mainly of children under the age of 15 years with the main focus in West Africa. Treatment options for Buruli ulcer available today are unsatisfactory with wide surgical excision and skin grafting as the standard treatment over the past decades. Recurrence rates of surgical treatment are unacceptably high. Antibiotics have been repeatedly evaluated with widely varying results. Recently Rifampicin/Streptomycin are again on trial focusing on their efficacy as primary and as adjunctive treatment combined with surgery. Since *M. ulcerans* is thermosensitive, prolonged heat application represents an attractive treatment option to destroy the majority of the bacteria. Heat application devices experimentally employed in the 70ies yielded very promising results, but were completely impractical in the field. Phase change materials (PCM) offer the unique perspective to put heat treatment into practice through their thermal energy storing capacity. In this pilot study, a randomized controlled trial of heat treatment (PCM - bandage) vs antibiotic treatment (8 weeks Streptomycin/ Rifampicin [= 8w Sm/Rif]) in patients with *M. ulcerans* ulcers in Ghana and Cameroon will be performed to test the efficacy of the new heat treatment device.

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