

Translation

New hope for patients with psoriasis from planar shock wave treatment

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An estimated 25 million people around the world are affected by psoriasis. In Germany alone, between two and three million people (2-3% of the population) suffer from this unpleasant skin disease.



Fig. 2: The Duolith SD1 planar applicator



Fig. 1: The Duolith SD1 shock wave source from Storz Medical AG

Treatment of psoriasis is, however, considered difficult. Because the disease is triggered by a genetic defect, no causal treatment is possible.

Focused shock waves have been used with great success in the treatment of orthopaedic problems such as tendinosis calcarea, lateral and medial humeral epicondylitis, heel spur and pseudoarthrosis for around 15 years. Extracorporeal shock wave therapy (ESWT) was originally developed for use in urology, where it has been used to destroy kidney stones non-invasively for around 30 years.

Recently, extracorporeal (usually planar) shock waves have also begun to be used in dermatology. Poorly healing wounds, such as leg ulcers, burns or diabetic leg ulcers, are being treated today with remarkable success.

As a result of these insights, a first-ever attempt to use planar shock waves for treating psoriasis was made.

The treatment was performed on a 55-year-old female patient who had been suffering from psoriasis for 30 years. She did not suffer from psoriatic arthritis. The skin plaques on the lower legs were described as being particularly

There are various therapeutic approaches for alleviating symptoms, including topical treatments with salicylic acid, urea, polidocanol, tar, dithranol, cortisone and Vitamin D and A derivatives. Systemic treatments include methotrexate, corticosteroids, immunosuppressants, fumarates and biologicals. In addition to various alternative medical treatments, such as acupuncture and homeopathy, bath, light and climate therapies also represent promising treatment approaches. In addition, the precise application of a special laser light to the affected areas is now considered a standard treatment.

The first attempt to use planar shock waves to treat a patient who had been suffering from psoriasis vulgaris for many years was undertaken in October 2006.

Shock waves are rapid sound waves which trigger a biological response in treated tissue and can thus give rise to a range of effects. Details of the mode of action of shock waves on different cell types have not yet been fully elucidated. What is considered certain is that growth factor formation and an increase in perfusion occurs, leading in the long term to neovascularisation and the development of new, healthy tissue in the area treated.

problematic, as they did not respond to either topical or systemic treatment.

We used planar shock waves generated using the Duolith SD1 device manufactured by the Swiss company Storz Medical AG (Fig. 1). The high energy sound waves were applied to the margins of the psoriatic plaques using a mobile applicator (Fig. 2). Sterile ultrasound gel was first applied to the psoriatic plaques on the lower leg, which were then covered with a sterile film, to which a generous amount of additional ultrasound gel was then applied. The margins of the psoriatic plaques were then treated with a dosage of 0.22 mJ/mm² and 200 pulses per cm² at a shock frequency of 4 Hz.

The patient was treated using this therapy regime a total of four times. The interval between treatment sessions was 2 weeks. No topical or systemic treatment was administered in tandem with this therapy.



Fig. 3: Prior to treatment



Fig. 5: 2 weeks after the 4th treatment
Narrowing of the margins, less intensive reddening



Fig. 4: After the 4th treatment

To evaluate treatment outcome, photos of the psoriatic plaques were made prior to the first treatment session and after the final (5th) treatment session.

Evaluation of the photographs shows visible improvement to the psoriasis after just 4 treatments, i.e. within 8 weeks. Scale formation, the core growth phenomenon, is significantly less pronounced and the margins of the lesions are no longer so sharply delineated. Signs of healing are clearly visible.



Fig. 6: Psoriasis also present on the other leg. Untreated, no improvement



Fig. 7: 1.5 years after treatment

The patient failed to present, as arranged, for follow-up after completion of the treatment. In June 2008, 1.5 years after the final ESWT treatment, the patient returned to the practice because of an orthopaedic problem. She stated that the lesions had healed completely 3 months after the final treatment and that no new plaques had appeared on the treated lower leg since the treatment, a period of more than a year. No new episode had occurred. After 1.5 years, the plaques have healed completely, with no visible reddening or scale formation. Skin quality appears normal. The psoriatic plaque on the other, untreated lower leg (Fig. 6) is still present. This plaque was very small and the patient was not bothered by it, but nonetheless the psoriasis was still clearly visible.

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Treatment with extracorporeal shock wave therapy (ESWT) clearly offers new hope for patients with psoriasis. The advantage of ESWT

is that the shock waves can be applied directly to the affected area. In general, the treatment enjoys good patient acceptance, as, when used correctly (sterile cover, energy not greater than 0.22 mJ/mm^2), no side effects should occur and the use of planar shock waves of up to 0.22 mJ/mm^2 is almost painless. The success of the treatment is visible after just a few (3-6) sessions. ESWT treatment can be repeated after a treatment-free period of 3 months. The very good long-term results after 1.5 years give patients with psoriasis hope for an alternative to topical treatments and for a treatment to supplement systemic treatment methods.

A further observational study with more patients is planned to confirm this result.

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