ISMST

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Shockwave therapy brings new healing opportunities for heart attack patients and hope for people with spinal cord injuries

Vienna (ots) -

Success Story of Extracorporeal Shock Wave Therapy (ESWT)

Successful for over 40 years in urology for the disintegration of kidney stones, with high efficiency and hardly any side effects worth mentioning.

How does the shock wave work?

Without causing mechanical damage, shockwaves trigger a biological response in the treated tissue through their compressive, tensile and shear forces (mechanotransduction). Genes are activated in the cell nucleus starting to produce proteins (including growth factors) responsible for the healing process. This also causes increased ingrowth of newly formed blood vessels, which improves local metabolism. The additional modulation of the inflammation necessary for healing enables regeneration of pathological tissue.

Recent studies prove.

Shockwaves also trigger the production of messenger substances to the cell nucleus, which mobilize the body's own stem cells from the bone marrow, stimulating them to migrate to the treated tissue, settle there and develop into the required tissue (e.g. heart muscle cells). Instead of conventional stem cell transplantation shockwaves make it possible to initiate the body's own regeneration without risk of complications.

Therapy for a wide variety of tissues.

Since the underlying pathology can be treated with these methods, shockwave therapy is being used in more and more medical disciplines.

This creates a tool that opens up completely new possibilities in tissue regeneration without triggering significant side effects. Since conventional medicine has not been able to offer any significant therapeutic options to date, the present results of shockwave therapy are of particular importance and are therefore applied in the following areas. It can be assumed that shockwave therapy can be used in practically all medical specialties.

Spinal cord injury/cross-sectional lesion.

What was long considered unthinkable is now one of the major hopes for causal therapy: shockwave has also made great progress in the treatment of paraplegia. Since November 2020, the first patients have been included in an Austria-wide study. Due to the COVID pandemic, the initiation of the individual study centers has been somewhat delayed, but so far eight patients have already been enrolled in the study. In addition, the Unfallkrankenhaus Berlin, one of the most important centers for spinal cord injury in Germany, will participate in the study.

Dr. Wolfgang Schaden, adj. Prof., President of ISMST, Ludwig Boltzmann Institute for Experimental and Clinical Traumatology, Deputy Medical Director of AUVA, Austria

Cardiac Surgery.

Regeneration of heart muscle after myocardial infarction has long remained a dream of modern medicine. Despite extensive efforts to develop stem cell and gene therapies, none of these methods could be brought into clinical routine. Cardiac shockwave therapy brings a scientific breakthrough: Cardiac function is improved, and impressive results show the increase of patients' quality of life. Shockwave therapy in cardiac surgery has a favorable side effect profile and is on the verge of bringing cardiac regeneration into daily clinical practice.

PD Dr. Johannes Holfeld, University Department of Cardiac Surgery, Innsbruck Medical University, Austria.

Sexual Medicine.

Low-energy shockwave therapy has been a fabulous addition to sexual medicine armamentarium for men and women with various forms of sexual dysfunction, e.g. erectile dysfunction, premature ejaculation, persistent genital arousal disorder PGAD/genito-pelvic dysesthesia GPD. Many patients (and their partners) describe these comfortable and quick shockwave treatments as life changing.

Prof. Dr. Irwin Goldstein, Alvarado Hospital, San Diego, CA, USA

Aesthetic-, hand-, burn- and reconstructive surgery.

Shockwave medicine can support these four pillars of surgery noninvasively. Two significant examples: In aesthetic surgery with

significant improvement in cellulite with shockwave therapy after six to eight sessions, lasting for a period of about one year. In burns, shockwave therapy can accelerate epithelialization (healing) of superficial burn injuries clinically relevant by three days, with a significant reduction in infections and hospitalization.

Prof. Dr. Karsten Knobloch, SportPraxis Prof. Knobloch, Hanover, Secretary General of the German Shockwave Society DIGEST.

Sports Medicine.

After more than 30 years of experience, shock wave treatment is now a standard in sports medicine and rehabilitation facilities worldwide.

Leprosy.

Shockwaves used in a similar way as for diabetic foot ulcers have also led to the healing of wounds in leprosy patients and significantly improved the quality of life of these patients. This work, carried out in Agua de Dios, Colombia, by the Bosque University group in Bogotá, is now being used in several medical centers around the world with very positive results.

Prof. Dr. Carlos Leal, Bosque University, Fenway Medical, Bogotá, Colombia.

Wound healing.

Chronic wounds are challenging for patients concerned and practitioners and will have an increasing impact on health care systems. Treatment with shockwaves has a positive conditioning influence on the wounds and in a high proportion for healing, independent of otherwise aggravating factors (e.g. diabetes mellitus, immunosuppression, cortisone therapy, and other exacerbating factors).

- With an average treatment frequency of one treatment every second week, in addition to the established wound therapy, healing was observed in more than 70% of the cases of ulcers and other wound healing disorders.
- The therapy is free of side effects and helps to reduce the burden of the health care system due to the enormous savings potential.

Rainer Mittermayr, MD, MBA, assoc. Prof., Treasurer of the ISMST and Conference Secretary, Senior Surgeon Orthopedic and Traumatology, AUVA (Austrian Workers Compensation Board, Vienna, Austria)

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