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Shock Wave Therapy Wound Treatment Works

February - 27 - 2012

In short

There's always a problem when a technology works for reasons we don't understand. It's counterintuitive for anyone with a scientific background to simply accept that "it just works". That Extracorporeal Shock Wave Therapy (ESWT) appears to be an effective and cheap treatment for troublesome chronic wounds, yet struggles to find a place in the everyday treatment portfolio is a case in point. Now however a body of evidence is emerging which might just allow clinicians to see past the lack of scientifically proven explanation.

Background



A **new blog post** on industry body Eucomed's site shines a light on the problem of wound care and concludes that it costs around 2% of the entire European Health budget. Furthermore the demand for effective treatment will grow as the population ages, making this one of those unresolved challenges that far from going away is becoming more significant with time.

Is ESWT the answer?

From first cracking kidney stones 35 years ago, shock waves have expanded their applications, through bone repair and healing sports injuries to the treatment of wounds. The technology appears to work by inducing neovascularisation and has gained acceptance in orthopaedics and urological applications, yet is not as well adopted as a wound healing modality, despite the fact that for many patients all else fails.

ESWT Specialist company Cellsonic claims its technology results in wounds which are healed quicker and better with shockwaves than traditional methods. The company set out nearly ten years ago to make the best ESWT machine at the lowest possible cost in order to make the use of the technology in underdeveloped countries a practical reality. The result is a machine which is rugged and reliable and provides the cheapest cure with no side effects.

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For the company, Andrew Hague comments; "Diabetic foot is a serious problem in prosperous countries and the success in treating the gangrenous infection now leads us to treat other skin infections such as buruli ulcer in West Africa, leprosy in many countries and chagas in Latin America affecting millions of people. Drugs are very expensive, have limited success, always have side effects and lead to bacterial resistance. With shockwaves there is no need to take swabs to a laboratory because to know exactly what is the infection is irrelevant; shockwaves kill all viruses and bacteria."

So, aside from its application in the treatment of chronic wounds, specific diseases and infected tissues in far flung lands, does the technology have a place in "first world" healthcare provision? There's no doubt the demand is there as discussed in the Eucomed blog, but as we are all acutely aware the world of medical device technology adoption is one of evidence-based arguments and when the technology works in a way that we can only speculate about at the present time, it's not exactly a home run.

Then again, if it was you or a loved one suffering the agony of what can often be sizeable and incredibly painful lesions requiring repeat dressings changes and pharmaceutical based approaches, but with little sign of improvement, and you were offered a potential solution that sounded compelling and as far as we know risk free, wouldn't you take it?

A new paper

As recently as 2011 a new piece of evidence was published in the Journal of the World Federation for Ultrasound in Medicine and Biology, by an Austrian group which has demonstrated the effectiveness of ESWT in a sizeable patient group regardless of the presence of comorbidities, claiming that "neoangiogenesis is achieved that overrides the negative generalized aspects of for example nutritional and metabolic diseases."

In a 2009 paper, Kuo *et al* found that "increased vascular endothelial growth factor (VEGF), endothelial nitric oxide synthesis (eNOS), and proliferating cell nuclear antigen (PCNA) expression were observed and, thus, a neo-angiogenic property of ESWT could be postulated." The Austrian group's research which indicates that even over midterm observation periods, comorbidities do not influence the local wound healing processes induced through ESWT. In other words it is claiming to have significant evidence that the technology works with 74% of 282 patients showing confirmed wound closure at sites which had failed to respond to previous treatments.

We say

The evidence is mounting in support of ESWT as a wound healing methodology for the ever-growing number of patients with troublesome "non-healing" wounds. CellSonic thinks it's on to something with its low cost device and is bullish about its future. Time will tell, but as fans of technology and advocates its adoption as essential components of tomorrow's medical treatments, we can't deny the potential on show here.

Source: CellSonic, Eucomed, THE INFLUENCE OF COMORBIDITIES AND ETIOLOGIES ON THE SUCCESS OF EXTRACORPOREAL SHOCK WAVE THERAPY FOR CHRONIC SOFT TISSUE WOUNDS: MIDTERM RESULTS; Wolff K, Wibmer A, Pusch M, Prusa A, Pretterklieber M, Teufelsbauer H, Schaden W, doi:10.1016/j.ultrasmedbio.2011.04.007

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