Editorial

Extracorporeal Shockwave for Myocardial Revascularization (ESMR)

The ESMR therapy is a non-invasive therapy approach using Extracorporeal Shockwave technology for Myocardial Revascularization. Ischaemic myocardial areas no longer accessible by conventional revascularization therapies could be treated with the Cardiospec ESMR therapy to relieve symptoms resulted from the myocardial ischaemia. The treatment is performed using a shock wave generator that is designed to address the unique clinical-anatomical requirements of the chest cavity. Meta-analysis of Extracorporeal Shockwave Myocardial Revascularization (ESMR) trials presented between 2006 and 2012 where 494 patients in 17 medical centers across Europe and Asia were treated.[1]

ESMR uses shock waves. Shockwaves are special acoustics waves that can be targetted and focused non-invasively to a selected area inside the patient's body. Shock wave therapies have been used in the last decades in Nephrology (kidney stone lithotripsy), Orthopaedics (plantar facilities) and Urology (erectile dysfunction) applications. In-vitro and animal data indicated an increase of angiogenic factor production and signs of neo-vascularization following treatment with low intensity shock waves (10% of the energy used for lithotripsy). This is the basis for feasibility testing in regional myocardial ischaemia.[2]

At each treatment session, shock waves should be delivered to the border of the ischaemic area for triggering angiogenesis etc. within the viable tissue with a scheme of 3 sessions per week, up to 10 spots per session and 100 shocks per spot. Patients having viable myocardial segments with reversible ischaemia and/or hibernation, optimum medical therapy (last 6 weeks), absence of acute clinical events (for >1 months) and patients who are unsuitable for invasive revascularization are the probable candidates for ESMR. Those with active coronary inflammatory process, acute Myocardial Infarction (MI) <3 months prior to treatment, intra-ventricular thrombus, pregnancy, malignancy in the area of treatment and inability of adequate echocardiography window are not eligible for ESMR. Prior to ESMR ECG, echocardiography and cardiac SPECT for

detection of area of myocardial injuries are undertaken.[3-4]

The data from the current meta-analysis demonstrate that Extracorporeal Shockwave Myocardial Revascularization (ESMR) improved symptoms, delayed the ischemic threshold and increased exercise tolerance. No side effects were reported and no ESMR-related myocardial damage was observed.[1,2] It can be told that ESMR is a non-invasive therapy that is safe and appears to be efficacious in the treatment of Refractory Angina Pectoris. Extracorporeal Shockwave Myocardial Revascularization (ESMR) may therefore be regarded as an effective noninvasive method of treatment for myocardial ischemia in end-stage CAD patients.

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References

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