



Extracorporeal Cardiac Shockwave Therapy in Severe Coronary Artery Disease Unsuitable for Percutaneous Coronary Intervention (PCI) and Coronary Artery Bypass Surgery (CABG): A Single Center Experience

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Introduction: To test the effectiveness and feasibility of extracorporeal cardiac shockwave (SW) therapy in patients with severe coronary artery disease (CAD) unsuitable for revascularization.

Methods: Extracorporeal SW is performed with the application of 100 shocks/spot at 0.09mJ/mm² energy flux density for 3-6 spots each time, with three times per week at each series for three series at 1, 5, 9 weeks. The location and depth of SW application are based on thallium scan findings guided by echocardiography. The following parameters will be evaluated including symptoms of angina and needs of nitroglycerine use. The exercise tolerance and dipyridamole thallium 201 myocardial perfusion scan and echocardiography will be followed up after 6 months of initial therapy.

Results: This study included 27 patients, 18 males and 9 females with mean age of 70±9 (50-89) years old. 14 patients had DM, 7 had CVA, 7 had previous CABG, 15 had old MI. 25 patients had triple vessel disease and 2 had two vessel disease. Each patient received 1200 to 5200 shocks (3881±935) respectively during the whole course of therapy. One patient did not complete the study due to recurrent CVA. Among the remaining 26 patients, 11 patients could perform treadmill exercise test, the maximal exercise duration increased from 248 to 319 second (P=0.007). 21 of 26 (80%) patients showed improvement of reversible ischemia by follow up thallium scan. Two patients received coronary angiography and coronary artery showed new neovascularization after SW therapy.

Discussion: Extracorporeal cardiac SW therapy can ameliorate myocardial ischemia detected by thallium 201 myocardial perfusion scan and improve symptoms of angina.

Conclusion: Extracorporeal cardiac SW is feasible and effective in patients with CAD unsuitable for PCI and CABG.