

## Pulsed Electromagnetic Charges in the Management of Coronary Artery Atherosclerosis-Clinical Research

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**Abstract:** A patient with acute heart disease due to extensive advanced coronary artery atherosclerosis, who was resistant to get benefits to conventional treatment, was treated with pulsed electromagnetic energy field treatment using a Rife modifying device that delivers short pulses of electromagnetic charges to heart muscles cells. This device offers abundant free electrons to the human body and restores its polarization by reducing its free radicals content, neutralize the electric charge builds up along the walls of the arteries and gradually reduce the plaque builds up. A 66-year-old man known case of HTN, I.H.D with history of previous eight cath and CABG, four stents were inserted during the period from 1988 to 2016. As a result of the repeated of coronary occluded, he decided to try the alternative medicine i.e., electromagnetic and diet therapy. By using a DC pulsating device and an antioxidants supplement (Vit. E, Vit. C and selenium) one tablet per day. The patient improved remarkably. He manages his day-to-day routine without any complications. To the best of our knowledge, this is such report of this sort of treatment in Jordan and the results were very encouraging. The patient is one of us (A. A. Gh.).

**Key words:** Electromagnetic Therapy • Atherosclerosis • Food Supplement • Free Radicals

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### INTRODUCTION

A patient with acute heart disease due to extensive advanced coronary artery atherosclerosis, who was resistant to get benefits to conventional treatment, was treated with pulsed electromagnetic energy field treatment with a Rife modifying device that delivers short pulses of electromagnetic energy to heart muscle cell.

Several studies suggested that damage to the myocardial cell induced by the cycle of ischemia and reperfusion may be due, in part, to the generation of toxic, reactive oxygen species, such as superoxide radical, hydrogen peroxide and the hydroxyl radical [1, 2].

While the exact mechanisms for atherogenesis are not completely understood, recent studies suggest that oxidative modification of low-density lipoproteins (LDL) is a critical factor [3-5].

The ischemic heart disease (IHD) patients are characterized by a change of the blood serum's antioxidant status [6]. A wide range of natural and synthetic antioxidant drugs and/or supplements are

relevant to the management of cardiovascular disorders and they are need for the treatment of arterial hypertension and cardiac failure on patient with myocardial infarction [7-8].

Different studies suggested that the electromagnetic therapy is effective on any living cell to restore its polarization, by reducing its free radicals content.

The PEMF devices offer abundant free electrons to the human body, in addition to plentiful negative ions. Such a flood of free electrons, penetrating through permeable membrane throughout the tissues and affect the ATP production in the Krebs cycle [9].

The aorta has a ferroelectric properties i.e., the electric charge inherently builds up along the walls of the body's largest artery, the aorta. Because electric charge builds up on plaque in similar way to arteries, the inter play of these electrical properties might contribute to fat sticking to arterial walls. Once the phenomenon is better understood, doctors could apply the reverse process to help gradually reduce the plaque builds up [10].

Table 1: Comparative cardiac echo studies of the patient

Items	Two dimension mode	Measurements			Normal range
		Pre EMFE*	Post PEMFE*		
		14.8.2014	6.8.2015	11.1.2016	
left ventricle Dimension (LVD)	Diastolic	5.8	5	4.9	3.5-5.6cm
	Systolic	4.5	3.5	3.3	2.5-4cm
Ejection fraction(LVEF)		49%	57%	60%	55-75%
Inter Ventricles septum	Diastolic thickness	1.2	1.2	1.2	0.7-1.1cm
Posterior left ventricle wall	Diastolic thickness	1.2	1.2	1.2	0.7-1.1cm
Aortic Root	Dimension	3.4	3.4	3.4	2.5-3.9cm
Left Atrium	Dimension	4	3.7	3.7	2.5-3.8cm

PEMFE\*=pulse electromagnetic field energy

**The Case Report:** A 66-year-old male, known case of HTN, I.H.D. with history of previous eight catheterizations, as well as CABG, four stents were inserted during the period from 1988 to 2016, at Royal Medical Services and King Abdullah University Hospital.

The patient is non-smoker, he have had high total cholesterol (6-7 mmol), high Triglyceride (3-3.5mmol), while normal glucose 5-6 mmol and abnormality in Red blood cell contents; Red blood corpuscles= $6.3 \times 10^6/\text{mm}^3$  (normal  $4-5.8 \times 10^6$ ), mean cell Hemoglobin=21.7 pg (normal 27.35) and mean cell volume  $69.6 \mu\text{m}^3$  (normal 78-100).

The patient was admitted to the intensive care unit (ICU) with chest pain in 1988. After the Cath. operation the diagnosis indicated that three vessels ectasia and total LAD occlusion. He had been on Isosorbidenitrate, Dilzem and Aspirin.

After 6 years (In1996), again he admitted to the hospital with chest pain. The Cath. operation revealed that the right coronary was large dominant vessel and diffusely ectatic. The left anterior descending is totally occluded post diagonal with retrograde filling from the right. Diagonal is subtotally occluded with delayed prograde filling. Ramus has tight proximal stenosis, obtuse marginal one is sub-totally occluded with delayed prograde filling of a small vessel. So the cardiac surgeons decided to do bypass surgery.

During 2002, 2010 and 2011 he had four cardiac catheterizations and PCI with four stents were inserted. Again during 2013 he had typical cardiac chest pain and admitted to the hospital for elective cardiac cath. Diagnosis were; LAD: occluded LIMA-LAD patent, Cx: irregular, RCA: sever, ISR, PTCA done. Stinting was failed. So, after one month he had a balloon intervention.

**Discharge Medication:** Plavix, Isosorbide, carvedilol, statin and aspirin.

As a result of the repeated of coronary occluded, he decided to try the alternative medicine, i.e., electromagnetic and diet therapy. By using a DC pulsating device (a Rife modifying model), the patient received an electro-stimulation pulses on specific skin points, three sessions per week lasting 10 to 15 minutes for four months.

At the same time he receives an antioxidants supplement (vitamin E, C, and Selenium) one tablet a day.

During the weeks before the pulsed EMF device was used the patient was mostly suffer from typical chest pain, angina, shortness of breath and fatigue. The pain tends to get worse with little activity.

After the treatment course the patient improved remarkably without chest pain and without fatigue, he manages his day-to-day routine. The patient manage his daily activity like walking for a long distances and up the stairs for many floors easily during his daily activities as a lecturer in the Faculty of Agriculture. These improvements are confirmed with the echo findings. Table 1 gives the detailed of the echo reports done at different times.

**Echo Findings:** at August 14, 2014 were anterior wall hyperkinesia, while at August 6, 2015 and at January 11, 2016 were concentric LVH, good LV systolic function and normal color Doppler flow.

## DISCUSSION

This is part of an ongoing study of new method of non-invasive treatment for ischemic heart disease, by using DC-pulsating device. It is a small battery-operated generator, which generate precise frequencies in the range of 1 Hz to 999 kHz. It consists of firing circuit, switching circuit, a 9-volt battery and two copper electrodes was used for several diseases of remarkable success. We present the report of this patient who was successfully helped using this device.

Lipid peroxidation especially that achieved via the production of Reactive Oxygen Species (ROS) by activated monocytes / macrophages adhering to the endothelium could make an early and significant contribution to the development of atherosclerotic plaque [11-12].

It has been demonstrated that one of the earliest events, which occurs in atheroma formation is the accumulation of cholesterol-laden foam cells in the sub-endothelial space. Most of the cholesterol deposited in the cells is derived from low-density lipoproteins (LDL). Human LDL is not only rich in cholesterol but also in polyunsaturated fatty acids (PUFA) which has susceptible to lipid peroxidation [13].

As strategies for inhibition of free-radical damages, a wide range of natural and synthetic antioxidant drugs and/or supplement for therapeutic purposes have been suggested. Because vitamin E and C have antioxidant activity they might minimize free radical-induced myocardial damage. [14]. On the other hand the electromagnetic pulse prevents free radical generation by activating antioxidant enzyme activity and reducing oxygen consumption [15].

The electromagnetic pulses accelerate healing by acting as a catalyst for the antioxidants to connect with the free radicals which are the primary culprit in disease [16].

There is a statistical correlation between the electro-stimulation of key acupuncture points with a reduction in free radicals and an improved emotional state [17].

The electric charge inherently builds up along the walls of the body's largest artery, the aorta. The charges arrange itself that an electric field points outward from the artery and the direction of this internal field can be manipulated by external electric field. Scientists have found that arteries react curiously to external electric field [10].

Cholesterol has a dipole. Since like charges repel each other, if you could reverse the charges on your aortic wall, may be this would prevent the deposition of cholesterol. So, if we can deliver a drug with a certain charge to the artery wall then that might lead to different interaction with cholesterol [18].

The analysis of different experimental results proves the multilateral nature of the impact of EMFs on cell. Among such results three main points; action on cell membranes, action on free radical concentration and action on intracellular regulatory systems [19].

Pulse EMF energy was used in the management of ischemic heart disease and heart failure and the results were very encouraging. This method stimulates three

important proteins inside the cell. They are HSP 70 (Heat Shock Protein 70) nitric oxide (NO) synthase and VEGF 165 gene protein (which is angio-genetic) [20].

According to the results of this treatment we hypothesize that this device offers abundant free electrons to the heart muscle and restore its polarization and neutralize the electric charge builds up along the walls of the arteries and gradually reduce the plaque builds up.

## CONCLUSIONS

The patient responded remarkably well to the EM energy treatment for his acute myocardial infarction due to the multiple coronary vessel blocks and low ejection fraction. To the best of our knowledge, this is the first report of this treatment success in Jordan.

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