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## **INFLUENCE OF ENHANCED EXTERNAL COUNTERPULSATION THERAPY IN PATIENTS WITH ANGINA PECTORIS**

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**Background.** Angina pectoris or angina is episodic chest pain or discomfort because of inadequate oxygen supply to the heart, most often due to obstruction in the coronary arteries, often described as pressure, squeezing, burning or tightness, the pain usually lasts less than 20 mins. Enhanced External Counterpulsation (EECP) is a very effective outpatient, non-invasive therapy for the treatment of stable angina, Myocardial ischemia, and acute myocardial infarction. It is widely used as a treatment to lower the number and intensity of angina episodes. EECP increases right ventricular filling pressure by boosting venous return during diastole. EECP is safe and effective, improves Myocardial perfusion, reduces symptoms of obstructive coronary disease, and enhances functionality and quality of life.

**Aim:** this study aims to assess the long-term outcome of EECP in relieving angina in patients with Angina pectoris and myocardial ischemia.

**Materials and methods.** The review was performed on description of studies held in India. 250 Patients who were treated with EECP for Angina pectoris. Patients' average duration of clinical coronary artery disease was nearly 10 years of which 85% of patients had angina class II-IV and 70% of the patients had multiple cardiomyopathies including LV dysfunction, hypertrophy and myocardial hypertrophy. The EECP equipment consists of a computer, air compressor, three paired specially made pneumatic cuffs and a treatment table. The procedure begins by placing the cuffs around the patient's lower extremities (calves, thighs, buttocks) and the computer controlling the air compressor which inflates and deflates the pneumatic cuffs. ECG, Heart rate and blood pressure is measured during the procedure. The therapy typically lasts 30 to 35 sessions of about 1 hour prescribed for 5-7 days a week for 6 weeks.

**Results and discussion.** Administration of EECP treatment included 250 patients who had angina pectoris had a substantial change in the rate of exacerbation of heart failure. Post-therapy, there was a significant decrease in the severity of angina. Out of the total group, 76% of patients decreased by less than or equal to 1 angina class, 18% had no angina and 4% had an increase in angina class. 60% of patients discontinued the use of nitrovasodilators such as nitroglycerin after EECP. The patient's health showed a significant increase. At 6 months 60% survived and angina free survival rate was 79%. 53% had no Hospitalization, and 86% had no congestive heart failure events.

**Conclusions.** The outcome of this study pointed out that EECP has been shown to have profound effects on the cardiovascular system in patients with ischemic disease and angina. Completion of more than 30 hours of therapy was associated with decreased morbidity and mortality during treatment. EECP has increased the Cardiac output during treatment by more than 70%, reduced systemic vascular resistance by 18%-28%, and decreased angina episodes in patients with coronary artery disease. Additionally, EECP treatment decreases endothelial levels, decreases B-type natriuretic peptide levels and increases nitric oxide production, increasing vascular endothelial growth factors levels. Many Patients revealed a significant decrease in angina and improvement in functional status and quality of life. decrease in angina episodes was maintained in most patients at 6 months of continuation.

In summary, the results firmly suggest EECP is a very effective secondary noninvasive treatment for CHF and Angina pectoris with virtually no significant side effects. EECP stimulates the movement of blood from the lower extremities back to the heart which, promotes revascularization that bypasses the blockages causing angina and associating ischemic heart diseases. The increased blood flow to the heart enhances overall patient functionality and improves the quality of life.