Results of Enhanced External Counterpulsation (EECP) Therapy from Mid-Western United States

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Abstract

Background: Enhanced external counterpulsation (EECP) therapy has emerged as a promising non-invasive modality for patients with refractory angina pectoris and ischemia and for patients with heart failure. The benefits of EECP therapy remain poorly understood. Some researchers have postulated that EECP therapy facilitates collateral blood circulation and improved endothelial function. We report the results of EECP therapy from our community medical center in mid-western United States.

Purpose: The aim of the study was to evaluate the clinical benefit of EECP therapy in patients with refractory angina pectoris and/or heart failure symptoms.

Methods: 61 consecutive patients with a history of ischemic heart disease and/or congestive heart failure who were referred for EECP therapy to our institution were included in the study. Of these, 39 patients completed a full course of therapy (35 sessions) and represent the study cohort. We compared pre and post treatment results of functional capacity and severity of symptoms. The Wilcoxon signed-rank test was used to evaluate the significance of results. A p-value of <0.05 was considered significant.

Results: There were a total of 39 patients with a mean age of 72.2 years (range 41-95 yrs). Patients underwent 7 successive weeks (35 sessions) of EECP therapy; we compared the 6 minute walk test (6MWT) in meters, the Duke Activity Score Index (DASI), exercise tolerance in METs, mean anginal events per week, and sublingual Nitroglycerin (NTG) use per week. We compared pre and post EECP therapy results. 6MWT: 386.2 ± 99.4 vs 430.0 ± 111.4, p<0.05; DASI: 4.25 ± 2.6 vs 6.55 ± 4.6, p<0.05; exercise tolerance in METs: 2.94 ± 0.7 vs 4.15 ± 1.78, p<0.05; and NTG use: 2.55 ± 5.75 vs 0.52 ± 1.48, p<0.05.

Conclusions: EECP therapy resulted in significant improvement in exercise tolerance, reduction in anginal events, and a decrease in sublingual nitroglycerin usage in patients who completed the full course of EECP therapy. EECP therapy appears to be safe and effective in patients with ischemic heart disease and congestive heart failure.

References