

Single-Center Case Series Study: Barostim Improves Quality of Life Outcomes of Heart Failure Patients

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Abstract:

The list of medications known to induce QT prolongation is long. We report here a case of long QT syndrome (LQTS) caused by use of Doxylamine, which has previously only been reported once. The patient arrived to the emergency department after having ingested two bottles of Doxylamine (roughly 96 tablets) in a suicidal attempt and was noted to have seizure-like activity prior to arrival. Upon admission she was found to have severe rhabdomyolysis and significant QTc prolongation (>650 ms). Her clinical status improved over the course of hospitalization with supportive treatment that included intravenous fluids as well as electrolyte monitoring and replacement. Given the relative ubiquity of Doxylamine, the purpose of this article is to raise awareness of a unique adverse effect of a widely available medication.

Keywords: doxylamine; long QT syndrome; arrhythmia; antihistamine; anticholinergic

Introduction

Patients with heart failure may have poor emotional quality of life, in addition to physical heart failure symptoms. Despite traditional clinical management for heart failure, patients are often left with reduced ejection fraction and reduced life expectancy. Barostim is an innovative device that delivers continuous electrical stimulation to carotid baroreceptors that is implanted in a standard device pocket sutured to the carotid sinus in outpatient settings. The electrical stimulation serves to rebalance the autonomic nervous system and improve symptoms of heart failure.

Methods:

A retrospective review of patients who had a Barostim device implanted at our center was performed utilizing electronic health records. Patients were included if they had the Barostim device implanted and had a three-month minimum follow-up. Baseline values were obtained from EHR prior to Barostim device implantation and post-Barostim values were obtained, at minimum, three months after implantation. Quality of life

scores from the Minnesota Living with Heart Failure questionnaire (MLWHF), which provides multiple dimensions of scores: physical and emotional, and a total score. Other measurements that were compared included NYHA class, LVEF, and NT-Pro-BNP levels. Comparisons were made between values pre-implant and at follow-up.

Results:

13 patients, with demographics of a mean age of 59 and 85% male, diagnosed with advanced heart failure were implanted with a Barostim device at our center. Average baseline MLWHF total scores for the cohort were 58, which dropped to 31 after implantation ($p=0.001$, Figure 1). Higher total MLWHF scores indicate more significant health-related impairments to quality of life, thus indicating that a drop in scores post-Barostim implantation improved quality of life.

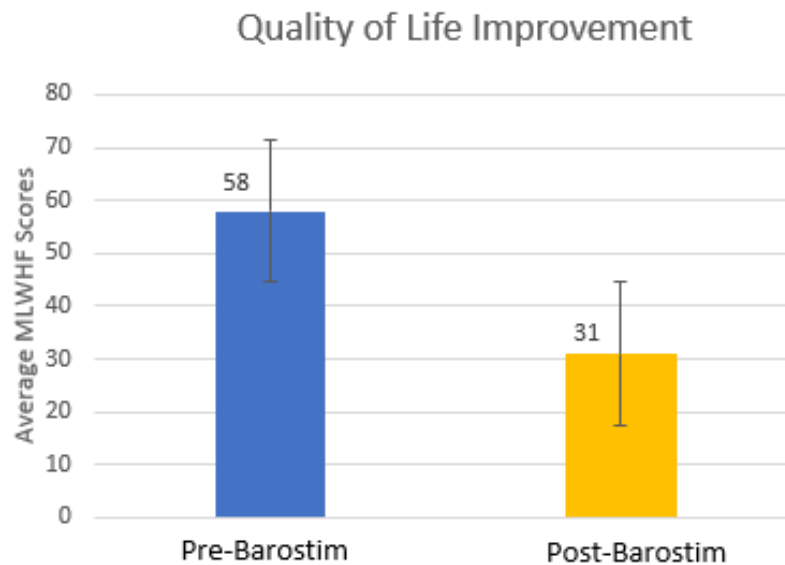


Figure 1: Quality of life improvement assessed from average MLWHF between pre and postBarostim device implantation

NYHA class also improved, indicating a shift to fewer limitations in physical activity (Table 1). LVEF improved on an average of 5% for our cohort, with a baseline average of 23%, from severely reduced

systolic dysfunction to a moderately severe systolic dysfunction (p=0.01, Figure 2). NT-Pro BNP levels with a baseline average of 1706 pg/mL improved by an average of 188 pg/mL, exhibiting an average 11% decrease in levels (p=0.02, Figure 3).

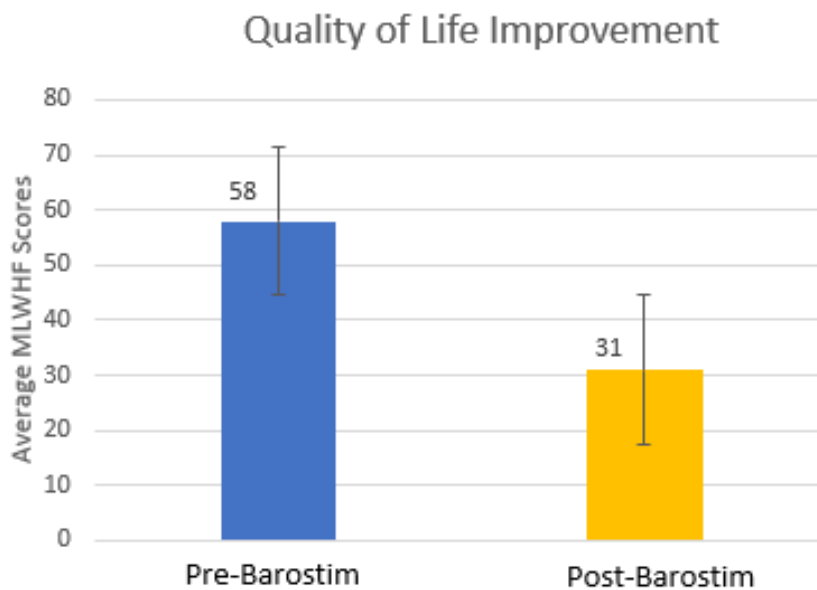


Figure 1: Quality of life improvement assessed from average MLWHF between pre and post Barostim device implantation

	PRE-BAROSTIM	POST-BAROSTIM
CLASS I	0%	8%
CLASS II	23%	23%
CLASS III	63%	69%
CLASS IV	15%	0%

Table 1: Percentage of patients in each NYHA class pre- and post-Barostim device implantation

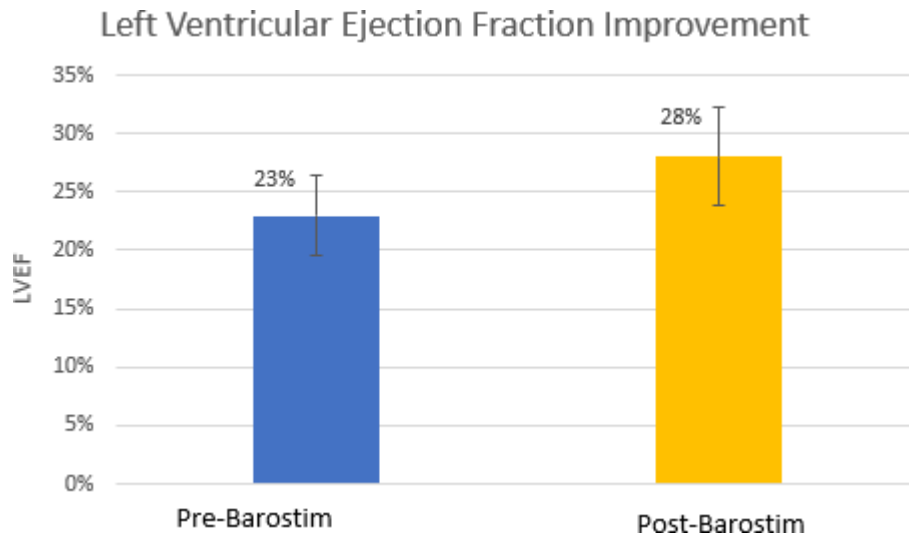


Figure 2: Left Ventricular Ejection Fraction (LVEF) improvement from pre and post Barostim device implantation

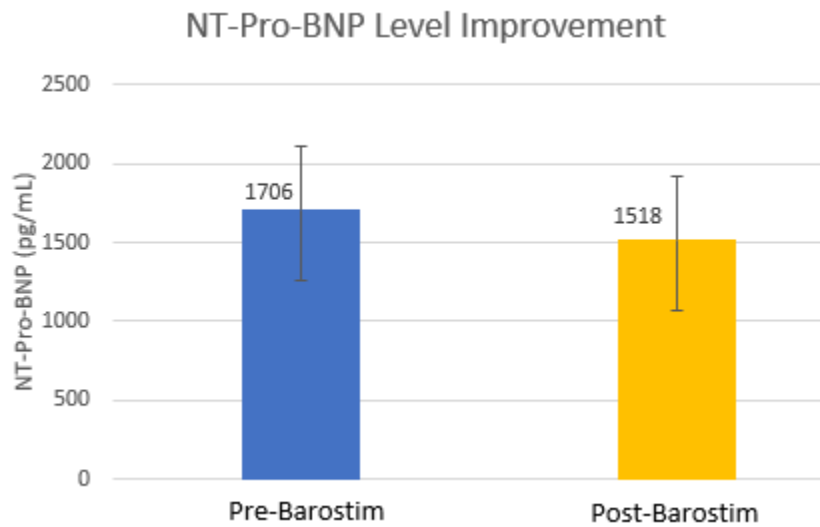


Figure 3: Improvement in N-Terminal prohormone of brain natriuretic peptide (NT-Pro-BNP) from pre and post Barostim device implantation

Conclusion:

Barostim showed preliminary improvement in heart failure symptoms, including MLWHF, NYHA functional class, LVEF, and NT-pro BNP

in heart failure patients. To continue assessing the improvement of heart failure symptoms, patients with the Barostim device should continue to be followed for longer periods of time to accurately report long-term effects of the device.



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