

Title: Contribution of Endothelin-1 to Exercise Intolerance in Heart Failure
NCT Number: NCT02124824
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Study Objective: To compare the effect of Endothelin-1 on limb blood flow in patients with heart failure and healthy, age matched controls.

Study Design: Single arm, unblinded. Limb blood flow will be determined in patients with heart failure and healthy, age-matched controls.

Study Methods:

Limb Blood Flow: An ultrasound Doppler system (Logiq 7, GE Medical Systems, Milwaukee, Wisconsin, USA) equipped with a linear array transducer operating at an imaging frequency of 7-8 MHz and a Doppler frequency of 4-5 MHz will be used for determination of femoral artery diameter and blood velocity.

Study drug: The ET_A selective antagonist BQ-123 (0.6 mcg/dl/min) will be administered intra-arterially (common femoral artery) rest and during knee extensor exercise (0, 5, 10, and 15 Watts).

Statistical Analysis: Mixed model with repeated measures, with drug infusion at each work load is the dependent variable and HF (yes, no) and work load are the major predictor variables, with age and gender as additional explanatory variables. In a case where multivariate analysis is ultimately deemed appropriate and of interest, but the data do not satisfy the assumptions of normal distribution, we will invoke the central limit theorem and perform the bootstrap technique to estimate the bias and variation in the data and then correct accordingly. Because of the importance of ensuring a potential positive finding is not missed, no statistical adjustment will be made for multiple primary comparisons.