

## **Acute and subacute hemodynamic responses and perception of effort in subjects with chronic Chagas cardiomyopathy submitted to different protocols of inspiratory muscle training: a cross-over trial**

**Purpose:** This study aimed to evaluate acute and subacute hemodynamic responses and perception of effort in individuals with CCC submitted to different IMT protocols.

**Materials and methods:** This was a randomized cross-over trial conducted on CCC subjects with systolic left ventricular dysfunction (<45% left ventricular ejection fraction) without or with heart failure (stages B2 and C, respectively). Twenty-one participants performed two IMT protocols, one targeting 60% maximal inspiratory pressure with 3 × 10 repetitions (MIP60) and the other targeting 30% maximal inspiratory pressure (MIP30) with 3 × 20 repetitions with a 2 min recovery between sets for both. MIP60 and MIP30 were performed on the same day with a 2 h washout period. Measurements were taken at baseline, during and 60 min after IMT.

**Results:** No differences in hemodynamic variables were observed across protocols. The perception of effort increased in both protocols, with higher scores for the MIP30 protocol ( $\beta = +1.6$ ,  $p = 0.01$ ;  $\beta = +1.1$ ,  $p = 0.02$ ;  $\beta = +0.9$ ,  $p = 0.08$  for the 1st, 2nd and 3rd sets, respectively).

**Conclusions:** There were no differences in hemodynamic responses comparing MIP60 and MIP30 protocols in subjects with CCC. Despite the higher perception of effort during endurance protocol, both protocols can be considered a safe therapeutic strategy. **IMPLICATIONS FOR REHABILITATION** Despite inspiratory muscle training may result in functional capacity improvements, no previous study evaluated the hemodynamic acute and subacute responses to inspiratory muscle training in chronic Chagas cardiomyopathy. The two inspiratory muscle training protocols (30% and 60% of maximal inspiratory pressure) did not cause significant hemodynamic repercussions in subjects with chronic Chagas cardiomyopathy. Inspiratory muscle training seems to be an effective strategy to improve functional capacity and can be implemented in the rehabilitation programs for patients with Chagas cardiomyopathy. Since no significant adverse responses were observed in any of the hemodynamic parameters during the inspiratory muscle training sessions, these two protocols of inspiratory muscle training (30% and 60% of maximal inspiratory pressure) seems to be safe in subjects with Chagas cardiomyopathy.