Abstract

Background: The effects of physical therapy on heart rate variability (HRV), especially in children, are still inconclusive. Objective: We investigated the effects of conventional physical therapy (CPT) for airway clearance and nasotracheal suction on the HRV of pediatric patients with acute bronchiolitis. Method: 24 children were divided into two groups: control group (CG, n=12) without respiratory diseases and acute bronchiolitis group (BG, n=12). The heart rate was recorded in the BG at four different moments: basal recording (30 minutes), 5 minutes after the CPT (10 minutes), 5 minutes after nasotracheal suction (10 minutes), and 40 minutes after nasotracheal suction (30 minutes). The CG was subjected to the same protocol, except for nasotracheal suction. To assess the HRV, we used spectrum analysis, which decomposes the heart rate oscillations into frequency bands: low frequency (LF=0.04-0.15Hz), which corresponds mainly to sympathetic modulation; and high frequency (HF=0.15-1.2Hz), corresponding to vagal modulation. Results: Under baseline conditions, the BG showed higher values in LF oscillations, lower values in HF oscillations, and increased LF/ HF ratio when compared to the CG. After CPT, the values for HRV in the BG were similar to those observed in the CG during basal recording. Five minutes after nasotracheal suction, the BG showed a decrease in LF and HF oscillations; however, after 40 minutes, the values were similar to those observed after application of CPT. Conclusions: The CPT and nasotracheal suction, both used for airway clearance, promote improvement in autonomic modulation of HRV in children with acute bronchiolitis.

Keywords

Physical therapy, cardiac autonomic modulation, respiratory diseases, pediatric patients, Clinical Trials Identifier: NCT01354561