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Title: Heart rate variability response to submaximal exercise in children with cystic fibrosis

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Body: Background: Rehabilitation or physical activity can improve chronic respiratory disease as a Cystic Fibrosis. Nevertheless, because autonomic dysfunction is common in CF, heart control may be affected in response to exercise. Objective: To assess the cardiac autonomic control using heart rate variability (HRV) analysis before and after a six-minute walking test (6MWT). Methods: We studied lung function at baseline and HRV before and after 6MWT in children's with CF and matched healthy control group. Results: Thirteen children in the CF group (6 male) mean age: 12±2.7 years, with obstructive disease (FEV1/FVC: 0.83±0.11, FEV1: 71.4±21 %pred) and 12 healthy children (6 male), mean age 11.4 ± 2.4 years, with normal lung function (FEV1/FVC: 0.93 ± 0.12, FEV1: 91.6 ± 17.4 %pred) were evaluated. Baseline HRV was different between CF and CG in LFnu: 53.18 ± 15.01 vs. 32.79 ±7.91, p = 0.0003; HF%: 25.45 ± 18.43 vs. 53 ± 9.56, p = 0.0018; HFnu: 47.32±14.68 vs. 68.34 ± 8.67, p<0.0019; and LF/HF: 1.25 ± 0.72 vs. 0.49 ± 0.18, p < 0.0066. After the 6MWT was observed significant differences between groups for LF(m/s2): 846.69 ± 754.81 vs. 345.58 ± 197.18, p=0.027; LF%: 35.44 ± 8.06 vs. 25.88 ± 6.20, p=0.0024; LFnu: 60.04 ± 16.27 vs. 34.9 ± 8.71, p<0.0001; HF%: 27.42 ± 13.73 vs. 48.13 ± 6,33, p=0.0003; HFnu: 40.45 ±15.8 vs. 65.59 ± 8.18, p =0.0003; and LF/HF: 1.9 ± 1.7 vs. 0.53 ± 0.21, p=0.0001. Conclusion: Children with CF had higher sympathetic drive at baseline and after a submaximal exercise test compared to the CG, suggesting a sympatho-vagal dysfunction.