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Title: Autonomic cardiac dysfunction in COPD: The role of 6MWT

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Body: Introduction: Heart rate recovery (HRR) after maximal exercise is a marker of autonomic cardiac dysfunction (ACD) in Chronic Obstructive Pulmonary Disease (COPD). But it has not been evaluated HRR immediately after 6 minute walking test (6MWT) on this population. Our objective was to evaluate the kinetics of the HRR curve (HRRk). Methods: We measured HRRk during 4 minutes after the 6MWT in 24 COPD patients (70 ± 6 years, mean ± SD, FEV1 54 ± 17%) and 19 healthy subjects (68 ± 10 years, FEV1 87 ± 7%). To facilitate the comparison among groups and remove the effect of different peak HR, the HRR curves were normalized to a range of 1 at peak heart rate (HRpeak) and zero at 4 minutes into recovery (HRR4). Results: We found differences at rest on HR (82 ± 13 vs 72 ± patients in healthy 12 beats, p = 0.017), HRR (HRR1 = 14 ± 7 vs in patients and 21 ± 8 beats in healthy subjects, p = 0.003) and 6MWT (516 ± 79 vs patients 578 ± 84 meters healthy, p = 0.018). The slope of the standard and normalized curves were significantly lower in patients with COPD (k= 0.08 in COPD patients vs k = 1.48 in healthy subjects, p = 0.017).

Conclusions: In COPD patients HRRk was lower than healthy subjects after 6MWT. This abnormality is

reflected from HRR1. 6MWT may be a simple test to detect ACD in COPD.