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Title: High prevalence of altered cardiac repolarization in patients with COPD

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Body: Background: Chronic obstructive pulmonary disease (COPD) is associated with an increased risk of cardiovascular morbidity and mortality. Previous studies suggested that patients with COPD have an increased risk of sudden cardiac death (SCD). In the general population altered cardiac repolarization has been identified as independent risk factor for SCD. However, the prevalence of altered cardiac repolarization has not been defined in patients with COPD. Methods: In 91 COPD patients (GOLD I-IV, mean age 62.0 (SD 7.1)), 31 control subjects matched for age, cardiovascular risk factors (Pocock score) and medication, and 41 healthy subjects, measures of cardiac repolarization (QT interval, Tpeak-to-Tend (TpTe) interval) were derived from 12-lead electrocardiography. The prevalence rates of heart rate corrected QT (QTc) >450ms and TpTe (TpTec) >110ms were determined to assess the number of subjects at risk for SCD. Results: QTc was significantly longer in COPD patients compared to matched controls and healthy subjects respectively (438.0 ± 29.6 vs. 425.7 ± 27.9 ms, p=0.046 and vs. 405.4 ± 20.7 ms, p<0.001 respectively). TpTec was not significantly different in COPD patients compared to matched controls, but was significantly longer in COPD patients compared to healthy subjects (103.2 ± 17.4 vs. 87.5 ± 10.1 ms, p<0.001). QTc was prolonged in 32% and TpTec in 30% of the COPD patients compared to 13% and 48% in matched controls and 0% in healthy subjects. Conclusion: A third of all COPD patients seem to have disturbed cardiac repolarization. Thus disturbed cardiac repolarization may be a mechanism contributing to the risk of SCD in patients with COPD.