



P80 Predictors of Middle Cerebral Artery Pulsatility Index in Chronic Obstructive Pulmonary Disease and Healthy Controls; Data from the ACRADE Study

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ABSTRACT

Background: Chronic obstructive pulmonary disease (COPD) is characterised by airway limitation which is an independent predictor of increased cardiovascular (CV) risk and mortality [1]. COPD is associated with increased arterial stiffness [2] and increased incidence of all stroke subtypes [3]. However, the mechanism linking this association is not fully understood. The study aims to identify predictors of middle cerebral artery pulsatility (MCAPI) in COPD and controls.

Method: MCAPI was measured using transcranial Doppler ultrasound. Aortic pulse wave velocity (aPWV) and central pulse pressure (CPP) were measured using the SphygmoCor system. Forced expiratory volume in the first second/forced vital capacity (FEV1/FVC) was measured using spirometry. Use of CV acting medications were recorded.

Result: 45 COPD patients and 50 healthy controls were included in the analyses. Age, gender, CPP and MCAPI were similar between groups, however the COPD patients showed higher aPWV, lower FEV1/FVC and were on more CV acting medication (all, $p < 0.05$). In COPD, MCAPI was significantly associated with CPP ($r = 0.433$, $p = 0.003$) and FEV1/FVC ($r = 0.330$, $p = 0.027$), but not aPWV. In controls, MCAPI was significantly associated with CPP ($r = 0.601$, $p = 0.001$) and aPWV ($r = 0.452$, $p = 0.001$). However, Stepwise Multiple Regression Analysis illustrated that only CPP remained an independent predictor of MCAPI ($p = 0.003$), in a model which included age, aPWV, FEV1/FVC and use of CV acting medications.

Conclusion: Within the COPD group, CPP was independently associated with MCAPI, even when accounting for use of CV acting medications. However, the interaction between CV acting medications and the relationship between aPWV and MCAPI remains unclear and needs further investigations.

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