**MICROVASCULAR RETINOPATHY PREDICTS FUTURE CARDIAC EVENTS IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE**

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Objectives: To determine whether microvascular retinopathy is a reliable clinical biomarker for increased cardiovascular risk.

Background: Patients with chronic obstructive pulmonary disease (COPD) are at an increased risk of cardiac disease. Identifying patients at highest risk improves management and reduces morbidity and mortality. Retinal photography allows non-invasive visualization of the microvasculature and may represent a surrogate for demonstrating cumulative damage to the cardiac vessels.

Methods: One hundred and fifty one patients with COPD were examined. COPD was diagnosed if a patient met the GOLD criteria on spirometry. The mean age of participants was 69 + 9.7 years with 80 (53%) being male. Participants provided a medical history and underwent retinal photography. The photographs were graded by the primary researcher and an ophthalmologist. Participants were then followed up over a two-year period for a cardiac event defined as occurrence of acute coronary syndrome, increase in troponin (>0.04ng/ml), arrhythmias, abnormal coronary angiogram or new onset heart failure.

Results: Moderate microvascular retinopathy was associated with a cardiac event over the following two years after adjusting for established cardiac risk factors such as age, gender, hypertension, diabetes, hypercholesterolaemia and severe pulmonary hypertension (OR 2.32, 95% CI 1.16-5.1, p=0.04).

Conclusion: Microvascular changes in the eye reflect damage to the vasculature and predict an increased risk of cardiac disease in patients with COPD within a two-year period. Further research is warranted to validate these results and to determine if early intervention improves patient outcomes.