**Impact of Left Ventricular Hypertrophy on Mortality in COPD**

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**Introduction and Objectives** Left ventricular hypertrophy (LVH) is a significant risk factor of cardiovascular disease and is associated with increased mortality. Previous studies have shown an increased prevalence of LVH in normoxaemic COPD patients. The impact of LVH on mortality in COPD is yet to be established.

We evaluated the impact of LVH on mortality in COPD patients by measurement of left ventricular dimensions by echocardiography.

**Methods** We performed a retrospective cohort study utilising a NHS database of COPD patients (TARDIS) in Tayside, Scotland between 2001 and 2010 and that linked with NHS Tayside databases regarding echocardiograms, pharmacy prescription and the General Register Office for Scotland death registry. Left ventricular internal diastolic diameter (LVIDd) and left ventricular mass index (LVMI) were measured. Increased LVIDd was defined as > 5.3 cm (female) and > 5.9 cm (male). LVMI was obtained by correcting the left ventricular mass to body surface area. LVH was defined as an LVMI of >95 g/m2 (female) and > 115 g/m2 (male). Patients with aortic valve disease were excluded from the analysis. The impact of increased LVIDd and LVMI on mortality were evaluated by Kaplan Meir testing and Cox Regression analyses after inclusion of covariates (age, FEV1%, SaO2%, history of diabetes and cardiovascular disease, medication (aspirin, ACE-inhibitor, statin, beta blocker).

**Results** 617 patients were included for analysis. Mean (SD) age at diagnosis, 70 (9); mean FEV1% (SD), 60.6 (19.3); mean rest SaO2% (SD), 92.7 (10). Mean follow up 4.5 years. Increased LVIDd was not associated with increased mortality, X2 = 0.767, p = 0.381. Increased LVMI was associated with a significant increased risk of mortality, X2 = 5.447, p = 0.02, with an adjusted HR (95%CI) of 1.542 (1.068–2.228), p = 0.021. (see graph below).

**Conclusion** The presence of left ventricular hypertrophy, demonstrated by elevated left ventricular mass index is associated with a significantly increased risk of mortality in COPD patients. Therapeutic interventions are required to address this important modifiable risk factor in COPD patients.