The Management of Co-Morbidities in Patients with Heart Failure – Lung Disorders

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Abstract
The 2016 ESC/HFA HF guidelines carry an important section on the treatments of co-morbidities in HF. One of the most common and most confusing, in terms of overlapping symptoms and interfering treatments is the presence of significant lung disorders. In this review what the recent guidelines say about the management of lung disorders in the setting of HF, both HFrEF and HFpEF and expand on some of the practical advice.

Keywords: Cardiology; Heart failure; Lung disease; Guidelines

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Background
The 2016 ESC/HFA HF guidelines carry an important section on the treatments of co-morbidities in HF[1]. One of the most common and most confusing, in terms of overlapping symptoms and interfering treatments is the presence of significant lung disorders. In this review what the recent guidelines say about the management of lung disorders in the setting of HF, both HFrEF and HFpEF and expand on some of the practical advice. Please note that sleep disordered breathing syndromes are covered in the subsequent two.

The diagnosis of COPD and asthma may be complicated in patients with heart failure. HF itself can cause a non-asthmatic bronchial obstruction that can be variable and which can respond to bronchodilators (because they constrict bronchial vessels and reduce the epithelial wall oedema that is thought to be implicated). The important feature is that this form of reversible airway narrowing is not a contra-indication to beta-blockers which severe classical asthma is. The interpretation of spirometry can be complex especially in HFpEF[2–4]. There are many overlaps between CHF and COPD including vascular remodelling inflammation and cachexia and skeletal muscle wasting. The presence of each increases morbidity and mortality of the other. The cornerstones of therapy are beta-blockers and beta-agonists, which as their modes of action suggest oppose each other’s actions. Hospitalizations and associated health care costs are dramatically higher when they co-exist.

To avoid over-diagnosis of COPD and asthma in the setting of CHF spirometry should be performed only in euvolaemic (at least 3 months) patients[5,6]. Whether the COPD diagnosis is accurate or not, it still carries a higher symptom burden and worse prognosis in HFrEF when it is made even clinically without formal testing. Beta-blocker, the mainstay of HFrEF management still offer substantial benefits to such patients, and must therefore be considered only relatively contraindicated in asthma (especially as true life-threatening asthma is extremely rare in most advanced HF patients). Beta-blockers are not contra-indicated in COPD. It is common practice to prescribe a more highly beta-1 selective adrenoceptor antagonist (i.e. bisoprolol, metoprolol succinate, or nebivolol) although no major outcome comparative study has ever been performed. It is, however, a good practical clinical precaution to start with low doses of cardioselective beta-blockers combined with close monitoring for signs of airway obstruction (wheezing, shortness of breath with lengthening of the expiration). These crucial life-saving medicines should be used but only with very close medical supervision in the initiation and up-titration phases.

Lastly it is important to consider the converse, the safety of conventional COPD medication in the setting of HF, especially HFrEF. The long-term safety of cardioactive inhaled pulmonary drugs is uncertain and the need for their use should be reconsidered in patients with HFrEF. Steroids should always be carefully monitored for their effects on blood pressure and congestion and hence worsened HF. Inhaled administration is therefore to be preferred. In the setting of severe AHF one of the recommended therapies, non-invasive ventilation, is safe and effective regardless of the presence of co-incident COPD provided excessive ventilation removing the occasionally crucial carbon dioxide mediated ventilatory is avoided. Such non-invasive ventilation can improve outcomes of patients with acute
respiratory failure and acute HF both in the presence or absence of acute pulmonary oedema.

Lastly life-style advice (optimal weight, regular carefully chosen exercise, adherence to medication, supervision by a disease management team and good communications with health care providers) are all similarly beneficial in COPD as they are in CHF, and doubly important for those patients with both.

Declaration of Interest
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References