

can be seen on echocardiogram. A positive troponin is a common finding with a subsequent normal coronary angiogram. Incidental paraproteins are prevalent in up to 8% of this population and it is important to obtain a tissue diagnosis to rule out AL amyloidosis. With supportive management medium term outcomes are good.

### 104 PROGNOSTIC UTILITY OF CALCULATED PLASMA VOLUME STATUS IN CHRONIC HEART FAILURE

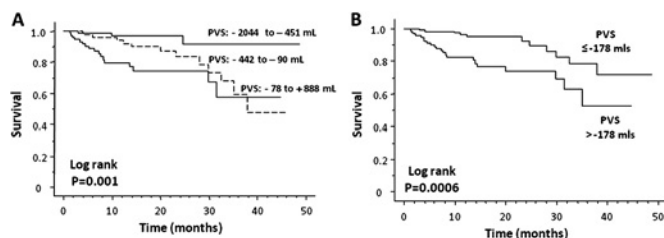
doi:10.1136/heartjnl-2011-300198.104

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**Background** Plasma volume (PV) expansion is a hallmark feature of worsening heart failure that is notoriously underestimated by clinical examination. While radioisotope assays optimally quantify PV status, numerous haemodialysis-based equations also exist for its estimation. The prognostic utility of such formulas in chronic heart failure (CHF) is unknown.

**Methods** We analysed the relation between estimated PV status and mortality in 246 outpatients with CHF (mean ( $\pm$ SD) age  $67 \pm 13$  years, NYHA class  $2 \pm 1$ , LVEF  $28 \pm 8\%$ ). PV status was calculated (Hakim RM, et al) by subtracting the patients actual PV ( $(1 - \text{haematocrit}) \times (a + (b \times \text{weight}))$ ); a and b are gender-specific constants) from their ideal PV ( $(c \times \text{weight})$ ; c=gender-specific constant).

**Results** Median ( $\pm$ IQR) PV status was  $-261 \pm 550$  ml with 78% and 21% of patients having PV contraction and expansion, respectively. Patients with PV excess had significantly higher creatinine and lower albumin levels. Over a median follow-up of  $13 \pm 16$  months, 36 (15%) patients died. PV status predicted mortality (HR 1.001, 95% CI 1.001 to 1.002,  $p=0.001$ ) in a graded fashion (Abstract 104 figure 1A) and did so independently of NYHA class, LVEF, weight, haematocrit and creatinine. A PV status  $\leq -178$  ml optimally predicted survival (ROC AUC 0.68,  $p=0.0007$ ) and conferred a 75% reduced hazard for death (HR 0.16, 95% CI 0.07 to 0.37,  $p<0.0001$ , Abstract 104 figure 1B).



Abstract 104 Figure 1

**Conclusions** Calculating plasma volume status in CHF patients appears prognostically useful and suggests that dehydration is better tolerated than volume excess in these individuals and that targeting therapy to achieve a plasma volume status  $\leq 178$  ml might increment survival.

### 105 CLINICAL AND ECHOCARDIOGRAPHIC DETERMINANTS OF N-TERMINAL PRO B-TYPE NATRIURETIC PEPTIDE LEVEL IN PATIENTS WITH STABLE CHRONIC OBSTRUCTIVE AIRWAYS DISEASE: A PROSPECTIVE OBSERVATIONAL STUDY OF 140 PATIENTS

doi:10.1136/heartjnl-2011-300198.105

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**Background** Brain natriuretic peptides have been shown to be reliable indicators of left ventricular failure and markers of risk in cardiac disease. However, patients with chronic obstructive pulmonary disease (COPD) are also known to have elevated concentrations of brain natriuretic peptides in the absence of overt cardiac disease, likely due to right ventricular strain. This has been shown to have prognostic value and has a potential role in the management of the condition; for example, it has been suggested that it could be used to guide the initiation of non-invasive ventilation. The aim of this study was to identify clinical and echocardiographic determinants of the polypeptide N-terminal pro-Brain Natriuretic Peptide (NT pro-BNP) in patients with stable COPD.

**Method** Arterial blood gases, plasma NT pro-BNP and transthoracic echocardiographic parameters were studied in 140 patients with stable COPD attending a respiratory outpatient clinic.

**Results** Of the 140 patients, 65 (46%) were male, 26 (19%) received home oxygen therapy, 115 (82%) were current smokers, 38 (27%) were prescribed diuretics and 15 (11%) had a left ventricular ejection fraction  $<45\%$ . Patients with cor pulmonale ( $n=6$ ) were more likely to have left ventricular systolic dysfunction ( $p<0.001$ ), reduced tricuspid annular plane systolic excursion ( $p=0.017$ ) and higher pulmonary artery systolic pressures ( $p=0.01$ ). The median (IQR) NT pro-BNP concentration was 16.2 (25.4) pmol/l. Concentrations were significantly higher in those with a dilated left atrium, aortic stenosis, left ventricular systolic dysfunction, right ventricular impairment, atrial fibrillation and those prescribed diuretics and ACE inhibitors. Significant predictors of NT pro-BNP were a dilated left atrium, aortic stenosis and left ventricular systolic dysfunction. NT Pro-BNP was an excellent discriminator of RV impairment (C statistic=0.90).

**Conclusions** NT pro-BNP readily identifies patients with stable COPD who have right ventricular dysfunction. However, several other clinical variables also associated with increased NT pro-BNP concentrations are prevalent in this population. This is likely to confound clinical decision making.

### 106 CHF PATIENTS ARE VITAMIN D DEFICIENT AND HYPERPARATHYROID, WITH LEVELS OF EACH RELATED TO MARKERS OF SEVERITY

doi:10.1136/heartjnl-2011-300198.106

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**Background** The vitamin D-parathyroid (PTH) axis is increasingly recognised as potentially being involved with many of the features of the syndrome of CHF. We wanted to explore the relationship between vitamin D and PTH levels in a group of CHF patients and relate these to markers of severity.

**Methods** We analysed serum 25(OH) vitamin D3 levels in 406 consecutive attendees of the Leeds Advanced Heart Failure clinic (310 men) and correlated these to clinical markers of severity.

**Results** Mean age (SE) was 69 (3) years, mean left ventricular ejection fraction (LVEF) 31 (2)%, mean serum creatinine 117  $\mu\text{mol/l}$  (2.4), median vitamin D levels (IQR) 30 (20–43) nmol/l (normal for skeletal health  $>75$  nmol/l) and median parathyroid levels 8.8 (6.2–13.5) pmol/l (normal  $<6.5$  pmol/l). Aetiology was ischaemic