Sudden Cardiac Death in Hypertensive Heart Disease…With a Heavy Heart.

Introduction: The prevalence of mortality due to hypertensive heart disease (HHD) is 1.2% in the UK. HHD is a well-established cause of sudden cardiac death (SCD). This study reports the characteristics of a cohort of SCD in HHD from a tertiary referral centre for cardiac pathology.

Method: We performed a retrospective cross sectional study, identifying cases from a national database recorded between 1994 and 2016. Cases were selected based on the diagnosis of HHD after expert cardiac review. Hypertension had to be diagnosed pre-mortem. Diagnostic criteria included increased heart weight, left ventricular thickness of greater than 15mm, myocyte hypertrophy and fine interstitial fibrosis. Cases with significant coronary artery disease were excluded.

Results: 63 cases of sudden death in hypertensive heart disease were identified. The average age was 53±15years; 32 were male and 31 were female. Females tended to be older than males. Average BMI was 33±9 and 60% were obese. Average weight of heart was 580±165 (males 577±161, females 556±169). Female hearts showed a greater increase above normal weight than male hearts (p=0.027). Mean maximal left ventricular thickness was 15.9mm (range 11-20). All hearts showed concentric hypertrophy. Left ventricular fibrosis was present in 46 cases (73%). The presence of fibrosis was not associated with sex (p=0.55), BMI (p=0.09) or heart weight (p=0.20).

Discussion: SCD in HHD occurs with similar frequency in both sexes. Females show a greater increase in heart weight and may be protected by oestrogen pre-menopause. Hypertension and obesity may act synergistically to increase the risk of SCD. Fibrosis was present in most cases and appears to occur independently of sex, BMI and heart weight. SCD appears to occur in those with concentric hypertrophy rather than eccentric hypertrophy. These findings highlight the importance of early identification and treatment of hypertension to prevent progression to HHD.