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## Heart

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### 5.16 Left Ventricular Geometry In Chronic Kidney Disease

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**Introduction.** Left ventricular hypertrophy (LVH) is highly prevalent among patients with chronic kidney disease (CKD). In this study we evaluated the prevalence of LVH, LV geometry, and the prevalence of inappropriate left ventricular mass (LVM) in a group of hypertensive patients with stage 2-5 CKD.

**Methods.** 293 hypertensive patients with CKD (M/F: 175/118; age: 59.3±13.7 years) underwent an echocardiographic exam (Acuson Sequoia 512). Patients with stage 1 CKD, on dialysis treatment, with obesity, coronary artery disease, and valvular diseases had been excluded.

**Results.** The prevalence of LVH and of inappropriate LVM were 47.1% and 52.9%, respectively, and both prevalence were progressively higher from stage 2 to stage 5 CKD ( $p=0.0001$  for both); we also observed a progressive increase of both LV wall thicknesses and LV diameters ( $p<0.0001$  for all). While we found a progressive and continuous increase of LV diameters and wall thicknesses from stage 2 to stage 4, the further marked increase of LVM taking place in stage 5 was largely dependent by the increase of wall thicknesses and of RWT (whose mean value was 0.469 in stage 5). With regard to the geometric patterns of LVH, 46.4% of patients had concentric LVH, 41.3% had eccentric LVH, and 12.3% had mixed LVH (characterized by LVMI  $>125$  g/m<sup>2</sup> in men and  $>110$  g/m<sup>2</sup> in women, RWT $>0.45$ , and end-diastolic diameter indexed by body surface area (DD/m<sup>2</sup>)  $>3.2$  in men and  $>3.1$  in women). The prevalence of mixed LVH was progressively higher from stage 2 to 5 ( $p=0.0001$ ). Multiple regression analysis showed that the association between LVM and renal function (beta: -0.287;  $p<0.0001$ ) was independent by potential confounders such as age, sex, body mass index, haemoglobin, systolic and diastolic blood pressure, and duration of hypertension.

**Conclusions.** Our data confirm the high prevalence of LVH among hypertensive patients with CKD. Moreover, in these patients the increase of LVM is frequently inappropriate and characterized by the increase of both LV diameters and wall thicknesses, with high prevalence of mixed LVH. The geometric pattern characterizing patients on stage 5 CKD, together with the very high prevalence of inappropriate LVM, are likely to contribute to explain the high cardiovascular risk of these patients.