

## P330

## Blunted heart rate reserve during vasodilator stress echocardiography in diabetic and renal failure patients

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**Funding Acknowledgements:** None

**Background.** A blunted heart rate reserve (HRR) during dipyridamole stress echo (SE) is a marker of cardiac autonomic dysfunction associated with poor outcome, independently of inducible ischemia, underlying coronary artery disease (CAD) and beta-blocker therapy. Patients with diabetes and/or renal failure have higher prevalence of underlying autonomic dysfunction.

**Aim.** To assess the value of HRR in patients undergoing dipyridamole SE.

**Methods.** We prospectively recruited a sample of 61 patients with known or suspected CAD (mean age  $75 \pm 10$  years; 34 males, 55,7%; 50% on beta-blockers at the time of testing). Coexistent atrial fibrillation or previous pacemaker implantation were considered as exclusion criteria. Three groups were identified a priori: non-diabetic with normal renal function ( $n = 43$ , Group 1); diabetics, with normal renal function ( $n = 14$ , Group 2); severely impaired renal function on dialysis ( $n = 4$ , Group 3). All patients underwent dipyridamole SE ( $0.84 \text{ mg/kg in } 10''$ ). Wall motion score Index (WMSI) was calculated with a 17-segment score of left ventricle, each segment scored from 1= normal to 4= dyskinetic. HRR was measured by ECG as the peak/rest HR ratio.

**Results.** A positive SE (stress WMSI > rest WMSI) was present in 2 patients of Group 1 (4.7%), 4 of Group 2 (28.6%) and no patient in Group 3. Heart rate was different, although not significant, among the 3 groups both at rest ( $66.1 \pm 11.1$  vs  $64.6 \pm 8.5$  vs  $79.0 \pm 8.0$ ,  $p = 0.050$ ) and at peak stress ( $83.8 \pm 12.6$  vs  $75.3 \pm 10.3$  vs  $86.5 \pm 11.1$ ,  $p = 0.059$ ). Of note, HRR was statistically different among groups ( $1.29 \pm 0.20$  vs  $1.19 \pm 0.14$  vs  $1.09 \pm 0.06$ ,  $p < 0.047$ ; see figure). There was no difference in HRR between patients off and on-beta-blockers ( $1.19 \pm 0.16$  vs  $1.24 \pm 0.24$ ,  $p = 0.421$ ) and with or without positive SE ( $1.20 \pm 0.14$  vs  $1.25 \pm 0.20$ ,  $p = 0.530$ ). Overall, HRR  $\leq 1.17$  (median value) was reported in 39.5% of Group 1, 71.4% of Group 2, and 100% of Group 3 pts ( $p = 0.024$ ). No significant correlations between HRR and peak WMSI ( $p = 0.183$ ) or age ( $p = 0.062$ ) were reported.

**Conclusion.** HRR is frequently abnormal in patients referred for SE testing, especially in presence of concomitant diabetes and advanced renal failure. The blunted chronotropic response is a simple, imaging independent marker of cardiac autonomic dysfunction and may usefully complement the conventional evaluation with regional wall motion abnormalities during vasodilator SE.

Abstract P330 Figure title: HRR box plots

