

Meeting abstract

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## 2053 Age and sex related changes in right ventricular dimensions and systolic function

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### Introduction

It is well known that the left ventricular dimensions and function is affected by ageing. However, the impact of ageing in right ventricle (RV) is yet unclear.

### Purpose

To investigate age- and sex-specific differences in RV morphology and function in health.

### Methods

123 normal volunteers (68 male; mean age  $61 \pm 16$ ) underwent cardiac magnetic resonance imaging. RV borders were visually detected from the short axis contiguous slices by an experienced operator. Body surface area (BSA) was used to index (I) the RV mass (M) and volumes (V) measured at end-diastole (ED) and end-systole (ES). The RV ejection fraction (EF) was calculated, the mass to volume (M/V) ratio was defined and the cardiac index (CI) was computed using heart rate and stroke volume (SV). Subjects were divided according to age (<60 and  $\geq 60$ ) and sex.

### Statistics

Results are expressed as mean  $\pm$  standard deviation. The two-tailed unpaired t test was used for data comparison. A  $p > 0.05$  was considered significant.

### Results

Men aged <60 years ( $n = 25$ ) had a higher RVEDVI ( $71 \pm 13$  ml/m<sup>2</sup> vs.  $63 \pm 9$  ml/m<sup>2</sup>), RVESVI ( $38 \pm 9$  ml/m<sup>2</sup> vs.

$30 \pm 8$  ml/m<sup>2</sup>) and RVMI ( $22 \pm 5$  gr/m<sup>2</sup> vs.  $19 \pm 4$  gr/m<sup>2</sup>) and a lower RVEF ( $46 \pm 7\%$  vs.  $52 \pm 8\%$ ) compared to women <60 years old ( $n = 25$ ). No statistical significant differences were found in the indexed right ventricular volumes, mass and function between men and women  $\geq 60$ . In men, RVEDVI ( $71 \pm 13$  ml/m<sup>2</sup> vs.  $57 \pm 14$  ml/m<sup>2</sup>), RVESVI ( $38 \pm 9$  ml/m<sup>2</sup> vs.  $28 \pm 6$  ml/m<sup>2</sup>) and RVMI ( $22 \pm 5$  gr/m<sup>2</sup> vs.  $18 \pm 3$  gr/m<sup>2</sup>) decreased with age while RVEF ( $46 \pm 7$  ml/m<sup>2</sup> vs.  $51 \pm 8\%$ ) and M/V ratio ( $0.38 \pm 0.06$  gr/ml vs.  $0.42 \pm 0.07$  gr/ml) increased but similar changes were not observed in women. In men, Pearson correlation analysis demonstrated an age related decrease in RVEDVI ( $r = -0.41$ ,  $p < 0.05$ ), RVESVI ( $r = -0.45$ ,  $p < 0.05$ ) and RVMI ( $r = -0.29$ ,  $p < 0.05$ ) while the M/V increased ( $r = 0.29$ ,  $p < 0.05$ ). Similar relationships were not observed in women.

### Conclusion

These data suggest that ageing has a different impact on RV morphology in men and women. The mechanism responsible for the gender related changes are unclear.