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Poster n°7 - 10h00–11h00

Vasodilator stress perfusion CMR is feasible and has prognostic value in morbid obese patients without known CAD

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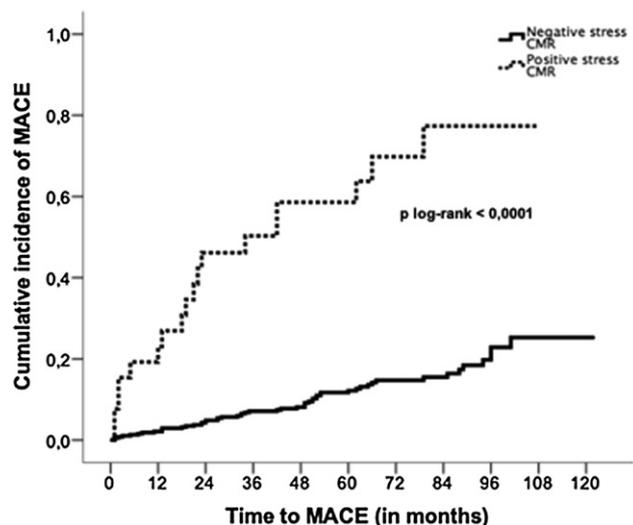
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Introduction Obesity is a growing public health problem with an impact on cardiovascular disease. But current methods for the detection of myocardial ischemia remain limited in obese patients and stress cardiac magnetic resonance (CMR) may be a powerful alternative. To determine feasibility and prognostic value of vasodilator stress perfusion CMR in morbid obese patients with body mass index (BMI) ≥ 40 kg/m².

Method Consecutive patients with a BMI > 40 kg/m² and without known coronary artery disease (CAD) referred for vasodilating stress CMR were followed for major adverse cardiovascular events MACE, defined as cardiac death, non-fatal myocardial infarction of stroke. Univariable and multivariable Cox regressions for MACE were performed to determine the prognostic association of inducible ischemia or late gadolinium enhancement (LGE) by CMR.

Results Of 452 obese patients (mean BMI 43.9 ± 3.8 kg/m², 44% of men), 444 (98%) completed the CMR protocol and among those, 404 (91%) completed the follow-up (mean 5.6 ± 2.2 years). Patients without inducible ischemia or LGE experienced a substantially lower annual rate of MACE (3.3% vs. 12.4% for those with ischemia and vs. 11.2% for those with ischemia and LGE). In a multivariable stepwise Cox regression including clinical characteristics and CMR indexes, the absence of inducible ischemia was an independent predictor of a lower incidence of MACE at follow-up (Hazard ratio 0.20, 95% confidence interval: 0.11 to 0.36; $P < 0.001$) (Fig. 1) and cardiac death (hazard ratio 0.11 95% confidence interval: 0.02 to 0.63). Using Kaplan-Meier analyses, myocardial ischemia identified future CV events/survival ($P < 0.001$).

Conclusion Stress CMR is feasible and has a high prognostic value in morbid obese patients, with a very low negative event rate in patients without ischemia or infarction as opposed to patients with inducible ischemia and/or presence of myocardial infarct. Kaplan-Meier curves (Fig. 1).



Kaplan-Meier curves describes the occurrence of MACE in morbid obese patients with or without inducible ischemia

Fig. 1

Disclosure of interest The authors have not supplied their declaration of competing interest.

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Poster n°8

3D echocardiographic assessment of right ventriculo-arterial coupling in mitral valve prolapse

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Introduction Pulmonary artery pressure (PAP) and right ventricular (RV) function have shown their value in the prognostic evaluation of patients with mitral valve prolapse (MVP). Echocardiography, including pressure estimation and volume measurement by 3D, allows an approach of right ventriculo-arterial coupling (RVAC) and assessment of the RV-PA unit.

Method Thirty healthy controls patients and 53 patients with MVP (34 in group MVP1 with no or mild mitral regurgitation (MR) and 19 in group MVP2) with moderate to severe MR underwent echocardiography including 3D RV acquisition. RV end-systolic volume (ESV), end-diastolic volume (EDV), stroke volume (SV) (mL) and ejection fraction (EF) (%) were obtained 3D echo (3DE) volumetric analysis (GE, EchoPac). mPAP was estimated from echo using Chemla's formula ($mPAP = 0.61 \times sPAP + 2$ mmHg). Pulmonary artery effective elastance (Ea) was estimated as $mPAP/SV$ (mmHg/mL), RV maximal end-systolic elastance (Emax) as $mPAP/ESV$ (mmHg/mL), and RVAC as $Ea/Emax$. Ea, Emax and RVAC were compared between the 3 groups of patients using ANOVA.

Results Mean LVEF, TAPSE, mPAP were similar in the 3 groups. RVEDV (NL: 81.3 ± 19.2 ; MVP1: 81.5 ± 23.1 ; MVP2: 92.7 ± 26.4 , ns) and RVEF (NL: 50.4 ± 4.4 ; MVP1: 49.2 ± 5.6 ; MVP2: 47.1 ± 5.5 , ns) were similar in the 3 groups but not RVESV (NL: 39.9 ± 9.8 ; MVP1: 41.6 ± 13.4 ; MVP2: 49.2 ± 15.7 , $P = 0.05$). Ea (NL: 0.41 ± 0.12 ; MVP1: 0.45 ± 0.16 ; MVP2: 0.48 ± 0.30 , ns) and E max (NL: 0.42 ± 0.11 ; MVP1: 0.45 ± 0.18 ; MVP2: 0.43 ± 0.25 , ns) were not significantly different but RVAC was significantly different (NL: 0.99 ± 0.17 ; MVP1: 1.06 ± 0.23 ; MVP2: 1.15 ± 0.25 , $P = 0.04$).

