



HAL
open science

Assessment of diastolic function from velocity-encoded cardiac magnetic resonance data in patients with hypertrophic cardiomyopathy

Golmehr Ashrafpoor, Nadja Kachenoura, Emilie Bollache, Laurent Macron, Arshid Azarine, Eric Bruguière, Sébastien Fontaine, Michel Desnos, Albert Hagège, Elie Mousseaux, et al.

► To cite this version:

Golmehr Ashrafpoor, Nadja Kachenoura, Emilie Bollache, Laurent Macron, Arshid Azarine, et al.. Assessment of diastolic function from velocity-encoded cardiac magnetic resonance data in patients with hypertrophic cardiomyopathy. *Journal of Cardiovascular Magnetic Resonance*, 2013, 15 (Suppl 1), pp.P170. inserm-00782658

HAL Id: inserm-00782658

<https://www.hal.inserm.fr/inserm-00782658>

Submitted on 30 Jan 2013

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

POSTER PRESENTATION

Open Access

Assessment of diastolic function from velocity-encoded cardiac magnetic resonance data in patients with hypertrophic cardiomyopathy

Golmeh Ashrafpoor^{1*}, Nadja Kachenoura², Emilie Bollache², Laurent Macron¹, Arshid Azarine¹, Eric Bruguière¹, Sébastien Fontaine¹, Michel Desnos¹, Albert A Hagège¹, Elie Mousseaux^{1,2}, Alban Redheuil^{1,2}

From 16th Annual SCMR Scientific Sessions
San Francisco, CA, USA. 31 January - 3 February 2013

Background

Diastolic dysfunction evaluation may be relevant for early diagnosis of hypertrophic cardiomyopathy (HCM) and subsequent risk assessment. The aim of our study was to assess phase contrast cardiac magnetic resonance (PC-CMR) diastolic parameters obtained with a semi-automated method in relation to left ventricular (LV) remodeling and late gadolinium enhancement (LGE) in patients with HCM.

Methods

We studied 48 patients with HCM and 23 healthy volunteers matched for age, sex and body surface area (BSA). Mitral inflow and myocardial velocities were assessed using through plane 2D PC-CMR (VENC=150cm/s and 20cm/s respectively). Transmitral peak flow-rates (E_f and A_f) and early E' peak myocardial longitudinal velocity were obtained semi-automatically using CardFlow (INSERM U678). LV volumes, segmental thickness and mass were obtained from SSFP images. LGE volume was quantified semi-automatically using a 6 SD threshold.

Results

Peak myocardial longitudinal velocity E' was significantly lower and E/E' was significantly higher in patients with HCM compared with controls (Table). We found a linear relationship between decreased E' and increased LV mass index ($p < 0.0001$), decreased mass/end-diastolic volume (M/EDV) ratio ($p < 0.0001$), increased LGE mass ($p = 0.04$) and LGE extension ($p = 0.04$). The relationships between E' and LV mass index and M/EDV were independent of age, gender, BSA and systolic blood pressure ($p < 0.001$).

Conclusions

Comparison of patients with HCM and healthy volunteers by CMR showed significantly altered LV diastolic function related to LV hypertrophy and LGE. Assessment of diastolic function may be considered for a comprehensive cardiac evaluation in HCM.

Funding

None.

Table 1

	Controls (n=23)	HCM (n=48)	p
LV mass (g)	132 (33)	195 (69)	0.0001
LV mass index (g/m ²)	69 (13)	106 (36)	<0.0001
EDV (ml)	139 (37)	151 (45)	NS
ESV (ml)	50 (14)	51 (23)	NS
Mass/EDV (g/ml)	0.99 (0.3)	1.35 (0.5)	0.0026
LV ejection fraction (%)	64 (5)	66 (10)	NS
Maximal wall thickness (mm)	NA	20 (4)	NA
Extent of LV hypertrophy (%)	NA	16 (17)	NA
LGE (g)	NA	4.1 (4.6)	NA
LGE (%)	NA	2.3 (2.2)	NA
E _f /A _f	1.21 (0.7)	1.47 (2.3)	NS
E' (cm/s)	8.6 (4.7)	3.4 (1.6)	<0.0001
E/E'	8.1 (4.3)	25.3 (18.6)	0.0001
DT (ms)	213.9 (72.1)	241.4 (67.4)	0.11

LV, left ventricular; EDV, end-diastolic volume; ESV, end-systolic volume; LGE, late gadolinium enhancement; DT, deceleration time

¹Hôpital Européen Georges Pompidou, Paris, France
Full list of author information is available at the end of the article

Author details

¹Hôpital Européen Georges Pompidou, Paris, France. ²Inserm U678, Université Pierre et Marie Curie Paris 6, Paris, France.

Published: 30 January 2013

doi:10.1186/1532-429X-15-S1-P170

Cite this article as: Ashrafpoor *et al.*: Assessment of diastolic function from velocity-encoded cardiac magnetic resonance data in patients with hypertrophic cardiomyopathy. *Journal of Cardiovascular Magnetic Resonance* 2013 **15**(Suppl 1):P170.

**Submit your next manuscript to BioMed Central
and take full advantage of:**

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit

