



Multiparametric Cardiac MRI (MP-CMR)

What does multiparametric mean?

This is a term used when multiple different parameters are used to assess different tissue characteristics of an organ or pathology. For e.g. multiparametric MRI of the prostate involves the use of diffusion, spectroscopy, and dynamic contrast MRI to look for carcinoma.

What is its use in cardiac MRI (CMR)?

Apart from cine imaging, different parameters that evaluate different tissue characteristics are used to understand the pathology. This allows us to look for inflammation, infiltration, fibrosis and infarction and in cardiomyopathies gives us an indication of the diagnosis.

What are the different parameters?

They are

1. T1 mapping

- a Used for evaluation of fibrosis and infiltration mainly. T1 values are raised in fibrosis and infiltrative conditions like amyloidosis.
- b T1 values are reduced in iron deposition as in thalassemics on blood transfusions

2. T2 mapping

- a Used mainly for edema imaging.
- b Raised T2 values in the correct clinical context allow diagnosis of myocarditis. T2 values are also elevated in hypertrophic cardiomyopathy and amyloidosis

3. T2* mapping

- a Used mainly for iron deposition evaluation
- b A low T2* value below 20ms implies iron overload

4. STIR imaging

- a Like T2 mapping, but has lower sensitivity

5. Delayed contrast imaging – late gadolinium (Gd) enhancement (LGE)

- a Abnormal enhancement occurs whenever there is myocyte disruption.
- b Infarcts, fibrosis and infiltration enhance, but have different enhancement characteristics.

Indications

MP-CMR is used in all patients who come for evaluation of a cardiomyopathy.



At a glance

- ◆ Tissue characterization is an important part of CMR evaluation in cardiomyopathies.
- ◆ Multiple parameters such as T1, T2 and T2* mapping are used for this along with LGE.

- ◆ MP-CMR is superior to regular CMR in the evaluation of cardiomyopathies.

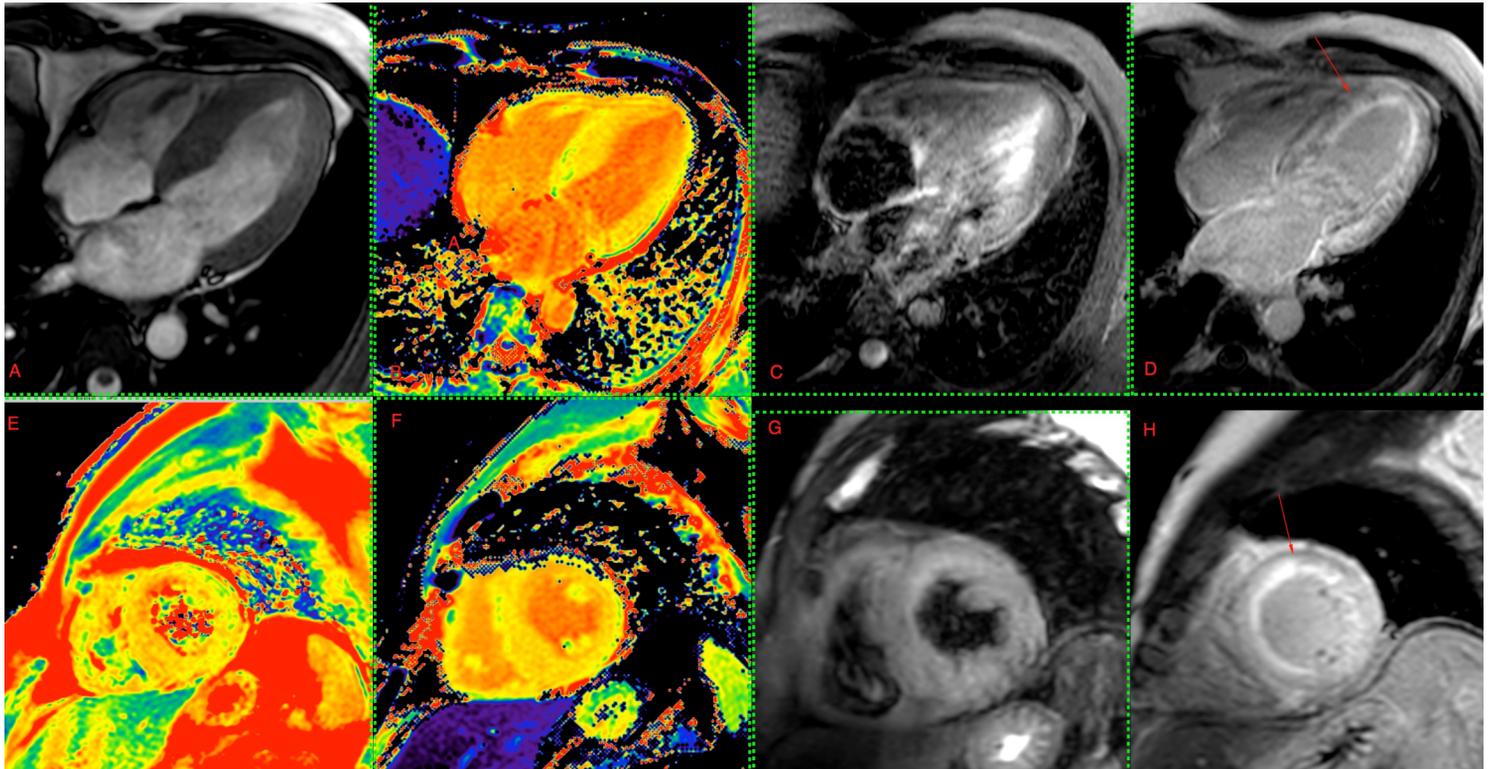


Fig. 1 (A-H): Four chamber (A-D) and short axis (E, H) images of patient with amyloidosis illustrating the use of MP-CMR. The T1 (B, F) values are markedly elevated along with elevation of the T2 values (E). The STIR images (C, G) do not show any significant abnormality since there is no edema. The LGE images (D, H) show diffuse subendocardial enhancement (arrows) that are typical of amyloidosis.

Subscribe to INNER SPACES : info@jankharia.com

Online version : <http://picture-this.in/index.php/inner-spaces/>

Main Clinic

383 | Bhaveshwar Vihar | Sardar V. P. Road | Prarthana Samaj | Charni Road | Mumbai 400 004 | T: 022 66173333

Cardiac, Chest & Interventional Twin Beam CT

Nishat Business Centre | Arya Bhavan | 461 | Sardar V. P. Rd | Next to Marwari Vidyalaya | Mumbai 400 004 | T: 022 6848 6666

PET / CT, Organ Optimized 3T MRI

Gr. Floor | Piramal Tower Annexe | G. K. Marg | Lower Parel | Mumbai 400 013 | T: 022 6617 4444

Owner, Printer & Publisher: Dr. Bhavin Jankharia

Published at: Dr. Jankharia's Imaging Centre

Bhaveshwar Vihar, 383, S.V.P. Road, Prarthana Samaj, Charni Road, Mumbai 400 004.