

## Impact of a rapid Cardiac Magnetic Resonance protocol for the assessment of cardiomyopathies in Low-Middle Income Countries



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### Abstract

**Background:** Cardiac magnetic resonance (CMR) is the gold standard for measuring structure, the function of the heart; adds incremental value by imaging scarring in cardiomyopathies and to assess iron level and it is highly represented within guideline (1). Despite the existence of MRI units, CMR is identified as a complex and expensive test, with poor training and availability in Low Middle-Income Countries (LMICs), despite the highest cardiovascular rate in these countries (2). The aim of the study is to assess the potential impact of a rapid CMR protocol at a multicenter level in LMICs, for the assessment cardiomyopathies.

**Methods:** An abbreviated CMR protocol previously developed for the evaluation of cardiac volumes, function and tissue characterization (non-contrast protocol: T2\* for the assessment of iron overload (3) and, a contrast protocol with late gadolinium enhancement LGE assessment) (4, 5)Figure 1. We deployed both protocols as a multicenter study: Argentina, Peru, India, Cape Town and Cuba. Pre-scan clinical information, scanning data and post-scan follow-up of participants for the assessment on impact, between 3 to 24 months.

**Results:** 550 scans (4 countries, 8 cities, 14 centers) were performed with the rapid CMR protocol. Contrast studies in 398 (74%). There were no scan-related complications. Good quality imaging in 90% of the studies. 96% of studies responded to the referral's question. All patients with contrast CMR scans have had at least one baseline 2D echocardiogram before CMR. The average scan duration was  $21 \pm 6$  mins for contrast studies and  $12 \pm 3$  for non-contrast T2\* protocol. The most common underlying diagnoses were non-ischaemic cardiomyopathy in 65% of participants (including cardiac iron level assessment in 24%, HCM in 18%, DCM in 14%), 29% of studies to assess ischaemic cardiomyopathy. Findings impacted management in 59% of patients. For just cardiac iron assessment: 1/3 of participants had iron deposited in the heart.

**Conclusions:** CMR can be delivered faster, easier and cheaper. It can be implemented in any city LMICs with existing technology. This protocol shows high-quality exam, with an important impact on patient management.

### Biography

Katia Menacho, a Peruvian Cardiologist, currently working as Senior Cardiac Research Fellow and completing her PhD studies at University College London and Barts Heart Centre, Saint Bartholomew's Hospital. My main area of interest and research are advanced cardiac imaging and improving its access in low-middle income countries. More information about the project: [www.rapidcmr.com](http://www.rapidcmr.com).