

## CMR ARVC protocol on 1.5 Tesla (Philips scanner)

### **Cardiovascular Magnetic Resonance (CMR) Arrhythmogenic Right Ventricular Cardiomyopathy (ARVC) protocol**

#### **Scanned Sequences**

1. Survey for determination of the cardiac position – Balanced Fast Field Echo (BFFE) – expiration
2. t T1 weighted Black Blood  
Plan on coronal plane
3. Balanced Turbo Field Echo (BTFE/RETR) 2 chamber left  
Cine images of the 2 chamber view  
Plan parallel to the septum, in the middle of the mitral valve
4. BTFE/RETR short axis  
Plan perpendicular to the 2 chamber left view, about 1/3 to the apex
5. BTFE/RETR 4 chamber 50 phases  
Cine images of the 4 chamber view: plan on the short axis
6. Native T1 mapping in short axis (3 slices) (MOLLI sequence)  
Three slices of the short axis: between mitral valve and apex. Three times in one breath hold.

*Administer a double dose of contrast (0.2 cc gadovist/kg) for the late enhancement images*

7. 3D whole heart breath hold  
Transversal non-angulated image of the whole heart
8. BTFE/RETR short axis view  
Functional images of the short axis, parallel to mitral valve  
Between mitral valve and apex  $\pm 12-15$  slices  
Always check on the end diastolic phase
9. BTFE/RETR left ventricular outflow tract (LVOT) view  
Cine images of the LVOT, angulate through the mitral- and aortic valve
10. BTFE/RETR 2 chamber right view  
Plan on the 4 chamber view, through the tricuspid valve and parallel to the septum.  
It is important that the tricuspid valve is clearly visible.
11. BFFE/RETR Right Ventricular Outflow Tract (RVOT)  
Cines of the RVOT. These are sagittal views through the RVOT
12. Look Locker 2 beats

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Determine the optimal inversion time (=highest blood/muscle contrast)  
Use the inversion delay table and use these values for the 3D short axis views  
Add +85 and use this value for the 2D Phase-Sensitive Inversion Recovery (PSIR) images.

13. Viability 2D 4 chamber

14. Multiple 2D slices (M2D)/ 4 chamber PSIR  
Viability of 4 chamber

15. M2D/short axis PSIR  
Viability of the short axis view, number is the same as the number of slices used for the cine short axis images

16. M2D/RVOT PSIR  
Viability of RVOT

17. M2D/ 2 chamber right PSIR  
Viability of the 2 chamber right view

*Make sure that at least 15 minutes have past between contrast injection and T1 mapping sequence*

18. T1 mapping enhanced short axis, 3 slices  
Three slices of the short axis view conform native T1 mapping.

### **Important notes**

It is important that the blood draw for determination of the hematocrit value will be performed on the same day of the CMR. Hematocrit is necessary for the calculation of the extracellular volume from the T1 mapping sequence.