

MRI of ARVD/C

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Note: If the patient is known to have frequent ventricular ectopy, the authors recommend the use of oral Metoprolol 50 mg, 1 hour prior to the procedure provided that the patient has no contraindications. If ventricular arrhythmias are frequent and will substantially impact image quality, the exam should be terminated at this point.

MR Imaging Protocol

Sequence 1: Sagittal Scout: any rapid image localizer

Sequence 2: Axial Black Blood Images: double inversion recovery TSE/ FSE

Axial imaging plane provides the best view of the right ventricular anterior wall and the right ventricular outflow tract. Prescribe the axial images starting from the diaphragm to the pulmonary artery.

TR= 2 R-R intervals,
TE= 5 msec (minimum-full) (GE), TE 30 msec (Siemens,)
slice thickness= 5mm,
interslice gap= 5mm, and
field of view (FOV)= 28 cm.
ETL 16-24

Sequence 3: Axial SSFP Bright Blood Cine Images

Same superior to inferior coverage as sequence 2.

TR=3.5 (GE); TR 40-50 msec (Siemens)
TE= minimum,
flip angle = 45-70°,
slice thickness= 8 mm,
interslice gap= 2mm
FOV = 36-40 cm,
16-20 views per segment.
Parallel imaging n= 2 is optional

Sequence 4: Vertical and long axis cine images (2, 4 ch view)

The parameters for this sequence are the same as sequence 3.

Sequence 5: Short-axis Black Blood Images

The parameters for this sequence are the same as sequence 2.

Sequence 6: Axial Black Blood Images with Fat Suppression (Optional sequence)

This sequence is optional and usually adds 10 extra minutes to the total scanning time. Repeat series 2 with chemical selective fat suppression.

*****GADOLINIUM IS ADMINISTERED ACCORDING TO INSTITUTIONAL PROTOCOL (usually 0.15 – 0.2 MMOL/KG)**

Sequence 7: Short-axis SSFP cine

This sequence is prescribed from the four-chamber view. Cover the entire left ventricle. These are performed after gadolinium administration, in order to give time for gadolinium washout. The parameters are identical to sequence 3.

Sequence 8: TI scout

4 ch view, using TI scout sequences or trial TI times to suppress normal myocardium.

Sequence 9: Delayed gadolinium short axis images (10-15 min delay)

Same slice coverage as short axis cine images.

TR/ TE per manufacturer recommendations
flip angle = 20-25°,
slice thickness= 8 mm,
interslice gap= 2mm
FOV = 36-40 cm,
No parallel imaging
Use phase sensitive inversion recovery if available (PSIR)

Sequence 10: Delayed gadolinium axial axis images

Same slice coverage as axial cine images. Pulse sequence same as sequence 9.
Use phase sensitive inversion recovery if available (PSIR)