

The Cardiovascular MRI Newsletter

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CE-MRA

Contrast Enhanced MRI Angiography

CE-MRA today can replace diagnostic catheter angiography in virtually most areas of the body

In the earlier days of MRI, angiography of the carotid vessels in the neck and at the circle of Willis was performed using specific sequences such as time of flight (TOF). Over the years with the improvement in MRI hardware, it is now possible to perform contrast-enhanced angiography in virtually every part of the body.

Usually between 14-30 cc of gadolinium is injected at the rate of 2-4ml/second and a multi-phasic MRI study is performed through the area in question. It is usually possible to obtain one slab of data every 15-20 seconds, thus allowing accurate evaluation of arterial and also venous phases, whenever necessary.

Advantages

1. No radiation.
2. No nephrotoxicity. CE-MRA is the modality of choice in patients with renal failure.
3. Imaging in coronal and sagittal planes, which is a better way to image in the abdomen and neck.
4. Multi-phasic - it is possible to obtain arterial, capillary, venous and late phases without additional contrast.

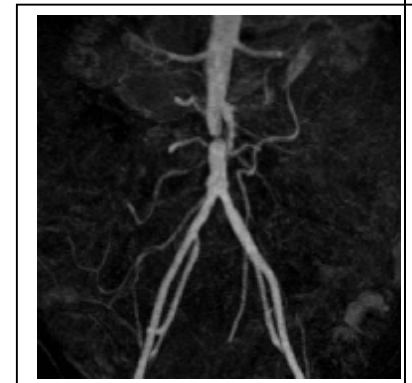
Requirements

1. A high-end 1.5T scanner with at least 30mT gradients
2. Pressure injector for injecting contrast
3. Specific coils, especially for lower limb angiography

Indications

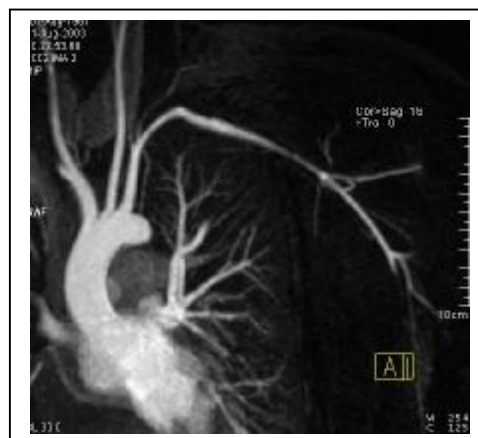
Aorta

1. Aneurysm
2. Atherosclerotic disease - stenosis, narrowing
3. Aorto-arteritis
4. Congenital
 - a. Co-arctation
 - b. Interruption
 - c. Vascular rings



Upper Limbs

1. Thoracic outlet syndrome
2. Thrombosis, narrowing



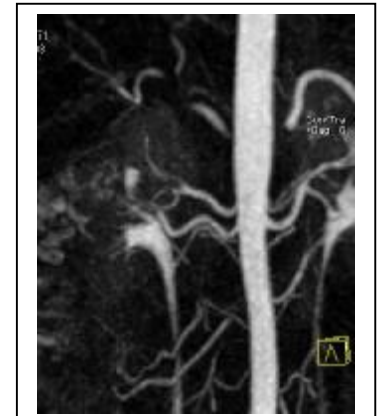
Celiac & Mesenteric Arteries

1. Stenosis
2. Aneurysm



Renal Arteries

1. Evaluation of anatomy in donor patients
2. Stenosis
3. Aneurysms, etc



Lower Limbs

1. Peripheral vascular disease
2. Focal lesions - aneurysms, etc

