

Cardiothoracic magnetic resonance angiography.

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At the current state of the art, cardiothoracic MR angiography offers the clinician information that is supplemental to that provided by other noninvasive imaging techniques. Indeed, in some areas MR angiography will likely surpass currently used methods as the technique of choice. Specifically, measurement of cardiac output, pulmonary blood flow, and lung perfusion can be performed relatively accurately and simply during a brief MR examination. Both standard spin-echo and angiographic evaluation of the thoracic aorta provide qualitative images with superior resolution. Additionally, development of pulmonary artery angiography is progressing rapidly and may soon be clinically useful. Phase incoherence caused by complex flow and resulting in a signal void is useful for location and qualitative assessment of abnormal flow jets induced by stenoses. However, this phenomenon represents the major limitation to quantitative assessment of flow abnormalities. Methods to increase signal to noise and/or reduce phase incoherence must be developed before MR angiography can be used effectively to assess abnormal flow conditions.