Endovascular aortic aneurysm repair in patients with renal dysfunction or severe contrast allergy: utility of imaging modalities without iodinated contrast.

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Contrast-enhanced imaging studies are required for preoperative evaluation in patients undergoing endovascular aortic aneurysm repair; however, the use of iodinated contrast agents may not be suitable in patients with renal dysfunction or severe contrast allergy. The objective of this study was to evaluate the utility of imaging modalities without iodinated contrast in patients undergoing endovascular aortic aneurysm repair. A total of 297 patients underwent endovascular repair of abdominal aortic aneurysms during a 6-year period ending August 2001. Among them, 20 patients (6.2%), who underwent imaging studies without iodinated contrast because of either renal dysfunction or severe contrast allergy formed the basis of this study. Multiple non-iodinated contrast imaging studies were used, including gadolinium-enhanced magnetic resonance angiography (MRA), non-contrast computed tomography (CT), gadolinium or carbon dioxide (CO2) aortography, and intravascular ultrasound (IVUS). Hospital records were reviewed to evaluate the imaging study, renal function, perioperative morbidity, and clinical outcome of endovascular aortic aneurysm repair. From the results of our study we concluded that endovascular aortic aneurysm repair can be performed safely in patients with renal dysfunction or severe contrast allergy utilizing non-iodinated contrast-based imaging modalities. IVUS is a useful intraoperative imaging modality, and postoperative endoleak surveillance can be performed using duplex ultrasound scanning to avoid risk of iodinated contrast exposure.

Publication Types:

- Evaluation Studies

PMID: 12183778 [PubMed - indexed for MEDLINE]