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Gadolinium-based contrast and carbon dioxide angiography to evaluate renal transplants for vascular causes of renal insufficiency and accelerated hypertension.

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PURPOSE: To evaluate the utility and potential nephrotoxicity of gadolinium-based contrast angiography when used with carbon dioxide angiography in renal transplant patients with suspected vascular causes of renal insufficiency and/or accelerated hypertension. **MATERIALS AND METHODS:** Thirteen consecutive renal transplant patients with suspected vascular causes of renal insufficiency and/or accelerated hypertension were evaluated with gadolinium-based contrast and CO₂ angiography with use of digital subtraction techniques. Stenotic lesions were treated with angioplasty with or without stent placement. No iodinated contrast agents were used. Serum creatinine levels were obtained before and at 24 and 48 hours after the procedure. An increase in creatinine levels greater than 0.5 mg/dL (44 micromol/L) was considered significant. **RESULTS:** Nine patients were studied for renal insufficiency, two for accelerated hypertension, and two for both. All 13 studies were considered diagnostic. Significant stenoses were treated in four patients with angioplasty with or without stent placement. Two patients had progression of their renal insufficiency. One of these patients underwent biopsy and was found to have both acute and chronic rejection. The other patient underwent cardiac catheterization 2 days after a transplant renal artery angioplasty. In the remaining nine patients with renal insufficiency (creatinine range, 1.8-3.9 mg/dL [159-345 micromol/L]; mean, 2.7 mg/dL [239 micromol/L]), renal function improved or did not worsen. **CONCLUSION:** Based on this limited study, gadolinium-based contrast angiography appears to be a promising supplement to CO₂ angiography for the diagnosis and treatment of vascular lesions in patients with renal transplant insufficiency and/or accelerated hypertension. Further study is necessary to determine safety, optimal gadolinium dosage, and imaging parameters.

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