Doppler Ultrasonography in the Evaluation of Renal Graft Artery Stenosis

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Dear Sir,

The detection of renal transplant artery stenosis (RTAS) by angiography reveals an incidence as high as 25% [1] and this procedure is considered to be the definitive diagnostic test for this condition. Doppler ultrasonography has been employed to evaluate renal blood flow and, as a noninvasive technique, to detect renal artery stenosis [2, 3] but no data are available on its role in the detection of RTAS.

In 19 hypertensive transplanted patients (mean arterial pressure, 148 ± 20.8 mm Hg) with a mean serum creatinine of 2.5 ± 1.4 mg/dl, spectral flow analysis [4] was carried out at the graft hilus by a Mark V duplex Scanner with a 5-MHz transducer. An angiographic study carried out thereafter documented RTAS in 4 patients. We observed a significant difference between the systolic and end-systolic values expressed in kilohertz between hypertensive patients and those with angiographically documented RTAS (table I). After percutaneous transluminal angioplasty (PTA) and surgical correction of graft artery stenosis, a significant difference between pre- and postoperative systolic values was documented (table II). Figure 1 shows the angiographic pattern and the spectral flow analysis of patient B.U. before (upper) and after (lower) PTA. These preliminary data are in agreement with a recent report [3] and recommend further clinical studies to assess the sensitivity and specificity of this technique in the diagnosis of RTAS.

Table I.

Table II.

$p < 0.005$

$p = \text{ns}$

$p < 0.005$

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Fig. 1. Angiographies and spectral flow analysis obtained from patient B.U. Before (upper) and after (lower) PTA. Analytic data in table II.

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