Evaluation of organ perfusion with contrast enhanced ultrasound after operative or endovascular treatment of visceral artery aneurysms

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Purpose: To evaluate the organ perfusion after operative (OR) or endovascular (ENDO) treatment of visceral artery aneurysms (VAAs) with CCDS or CEUS.

Materials and Methods: Between April 1995 to January 2016, 168 patients were diagnosed with VAAs. 60/168 patients (36%) fulfilled treatment criteria and had either open (29/60, 48%) or endovascular (31/60, 52%) aneurysm repair. Patients’ characteristics were consecutively reviewed. Technical success and organ perfusion were determined by ultrasound/CEUS and confirmed by magnetic resonance imaging / CT angiography (CTA).

Results: 18/60 patients (30%) presented with acute bleeding. 16/18 emergency patients (89%) were treated by endovascular means. Two patients showed a segmental liver malperfusion in CEUS and CTA. One small bowel resection had to be performed.
42/60 patients (70%) were electively treated. 27/60 patients (45%) had OR and 15/60 (25%) ENDO. There were no liver or bowel infarctions in CCDS or CEUS confirmed by CTA. Treatment of patients with splenic or renal artery aneurysms led to partial or complete organ loss in 44% (8/18) after OR and in 56% (5/9) after ENDO (p > 0.05).

Conclusion: In emergency case endovascular approach is the preferred therapeutic option to control bleeding. Patients for elective splenic or renal artery aneurysm repair in contrast to hepatic and mesenteric procedures have to be evaluated very carefully because of organ loss demonstrated by CEUS either after open or endovascular aneurysm repair.