Session Number: SS 609a
Session Title: Venous and renal interventions
Session Type: Scientific Session
Topic 1: Interventional Radiology
Session Start/End Time: Saturday, Mar 07, 2009, 10:30 AM -12:00 PM
Location: E1
Continuing Education: 1.5

Presentations:
Moderator--I. Battyány; Pécs/HU

Moderator--T. Lupattelli; Milan/IT

B-282/Detection of hemodialysis vascular access stenosis by intravascular pulse pressure analysis: An in-vitro study--R.N. Planken, K. van Canneyt, S. Eloit, P. Verdonck; 1Amsterdam/NL, 2Gent/BE


B-284/Retrieval of a new optional vena cava filter--S. Pieri, P. Agresti, L. Pancione, D. Laganà, G. Carrafiello; 1Rome/IT, 2Torino/IT, 3Varese/IT


B-286/The role of TIPS in non-cirrhotic patients with symptomatic portal cavernoma--E. Boatta, F. Fanelli, F. Salvatori, M. Corona, M. Allegretti, P. Rossi, R. Passariello; Rome/IT

B-287/Percutaneous portal vein embolisation for extended hepatic resection: Volume gain and achievement of operability in 85 patients--A. Koops, E. Ramcić, G. Krupski, G. Adam; 1Hamburg/DE, 2Reinbek/DE

B-288/Role of superselective renal tumors transcatheter embolization before laparoscopic partial nephrectomy: Methods, safety and efficacy--G. Vallati, G. Pizzi, L. Carpanese, R. Kajal, M. Crecco; Rome/IT


Detection of hemodialysis vascular access stenosis by intravascular pulse pressure analysis: An in-vitro study

Interventional Radiology

Saturday, Mar 07, 2009, 10:30 AM -10:39 AM

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B-282

Vascular access (VA) thrombosis, due to significant stenoses (>50%), is the main cause of VA failure in hemodialysis patients. Flow measurements enable detection of stenoses >70% and not >50%. Flow measurements regularly fail to prevent thrombosis. The purpose of the study was to test a new technique for detection of significant stenoses (>50%).

A pulsatile in-vitro model of a radio-cephalic arteriovenous fistula with silicone tubes, a reservoir and a pump was created. A 15G needle was introduced at 5 and 10 cm downstream of the anastomosis. Intravascular pulse pressure amplitude (systolic minus diastolic pressure = PP) was measured in the arterial inflow and at the arterial needle. PP ratios were calculated (PP-needle/PP-inflow*100%). A 50% stenosis was introduced in the arterial inflow, between needles and in the venous outflow, successively. Measurements were repeated at different heart rates (60-90 beats/min) and different flows (500-1,300 ml/min). ANOVA analysis and post-hoc tests were used to evaluate the relation between the PP ratio and the presence of a stenosis in different conditions.

PP ratios were 20.26 ± 4.55% (no stenosis), 7.69 ± 2.08% (arterial inflow stenosis), 36.20 ± 2.12% (between needles stenosis) and 32.38 ± 2.17% (venous outflow stenosis). Stenoses can be located upstream and downstream of the needle (P < 0.001). Between needles stenoses and venous outflow stenoses could also be distinguished (P < 0.001).

Pulse pressure analysis enables detection of 50% stenosis independent of heart rate and flow volume. It also enables stenoses localization, in contrast to flow measurements. This promising new method needs clinical validation.