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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[1], K. van Canneyt[2], S. Eloot[2], P. Verdonck[2]; *[1]Amsterdam/NL, [2]Gent/BE*

B-283/Interventions in acute dysfunctional hemodialysis fistulas: Prospective analysis of efficacy in 241 cases--P.J. Schaefer, N. Charalambous, F.K.W. Schaefer, M. Heller, T. Jahnke; *Kiel/DE*

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

B-285/Incidence, outcome and prognostic factors of post TIPS liver dysfunction in patients with cirrhosis--A. Luca[1], A. D'Antoni[1], R. Miraglia[1], G. Vizzini[1], B. Gridelli[1], J. Bosch[2]; *[1]Palermo/IT, [2]Barcelona/ES*

B-286/The role of TIPS in non-cirrhotic patients with symptomatic portal cavernoma--E. Boatta, F. Fanelli, F. Salvatori, M. Corona, M. Allegritti, 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[1], E. Ramcic[1], G. Krupski[2], G. Adam[1]; *[1]Hamburg/DE, [2]Reinbek/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*

B-289/Percutaneous temporary vessel occlusion for robotic partial nephrectomy with a thermoplastic polymer--S. Flacke[1], J. Merhige[2], A. Moinzadeh[1], K.G. Lyall[3], J. Wilkie[2], C.W. Bakal[1], J. Libertino[1], J.-M. Vogel[2], P. Madras[1]; *[1]Burlington, MA/US, [2]Woburn, MA/US, [3]Sunnyvale, CA/US*

B-290/Ablation of symptomatic cysts using n-butyl cyanoacrylate and iodized oil in autosomal dominant polycyst kidney disease: Long-term results--S. Kim[1], S. Kim[2], J. Cho[2], B. Cho[2]; *[1]Daegu/KR, [2]Seoul/KR*

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

Topic: Interventional Radiology

Presentation Start/End Time: Saturday, Mar 07, 2009, 10:30 AM -10:39 AM

Author(s): R.N. Planken[1], K. van Canneyt[2], S. Eloot[2], P. Verdonck[2]; *[1]Amsterdam/NL, [2]Gent/BE*

Presentation Number: B-282

Purpose: 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%).

Methods and Materials: 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.

Results: 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 ($P < 0.001$).

Conclusion: 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.