

## Abstracts from VAS 6th International Congress, April 20-22, 2009 Rome - Italy

**Methods:** From 1992 to 2008, 47 consecutive patients (22 women) with brachial artery to elbow vein autogenous fistula underwent flow reduction via replacement of brachial artery by transposed distal radial artery inflow. Fistulas were side-to-end either brachial-cephalic (19) or brachial-basilic (28). The indications were hand ischemia (4), cardiac failure (13), concerns about future cardiac dysfunction (23), and chronic venous hypertension resulting in aneurysmal degeneration of the vein (7). Mean patient age was 44 years, 11% were diabetic, 17% were smokers, and mean BMI was 22. Mean fistula age before flow reduction was 2.5 years.

**Results:** Technical success was 91% (43 of 47 pts). The mean flow rate dropped by  $66\% \pm 14\%$ . Clinical success in symptomatic patients was 75% (18 of 24). The fistula eventually had to be ligated in three cases of cardiac failure because of insufficient clinical improvement. All four patients with hand ischemia were cured, with no recurrence during follow-up. Primary patency rates at one and three years were  $61\% \pm 7\%$  and  $40\% \pm 8\%$ . Secondary patency rates at one and three years were  $89\% \pm 5\%$  and  $70\% \pm 8\%$ .

**Conclusion:** Transposition of the radial artery is a safe and effective technique for flow reduction in proximal AVFs.

#### LIPECTOMY: A NEW APPROACH TO SUPERFICIALIZATION OF FOREARM HEMODIALYSIS AVFs IN OBESE PATIENTS

P. Bourquelot<sup>1-5</sup>, J.B. Tawako<sup>4</sup>, J. Gaudric<sup>3</sup>, O. Van Laere<sup>1-5</sup>, G. Franco<sup>2</sup>, L. Turmel-Rodrigues<sup>5</sup>

<sup>1</sup>CMC Jouvenet, <sup>2</sup>CCMC Arago, <sup>3</sup>La Pitié-Salpêtrière, Paris - France; <sup>4</sup>Dialysis Access Specialists, Miami, Florida - USA; <sup>5</sup>CMC Ambroise Paré, Neuilly sur Seine - France

**Background:** The depth of veins can discourage surgeons from creating radial-cephalic fistulas in obese patients. Elevation and tunnelization are the two techniques that have been described to make them accessible for cannulation. We report lipectomy, a new technique which removes subcutaneous fat and does not mobilize the vein.

**Patients and methods:** This single center prospective study included 49 consecutive patients who underwent second-stage lipectomy after creation of a radial-cephalic fistula. Mean BMI was  $31 \pm 5.6$  kg/m<sup>2</sup>. Subcutaneous fatty tissues were removed after two transverse skin incisions under regional anesthesia and preventive hemostasis. Cannulation was first possible one month later. Success rates were defined according to the ability to cannulate the vein in the lipectomy area within 3 months.

**Results:** Technical and clinical success rates were 96%(47/49). Mean vein depth decreased from  $8 \text{ mm} \pm 2 \text{ mm}$  to  $3 \text{ mm} \pm 1 \text{ mm}$  according to duplex ultrasound follow-up. Primary patency rates were  $71\% \pm 7\%$  and  $63\% \pm 8\%$  at 1 and 3 years, respectively, and secondary patency rates were  $98\% \pm 2\%$  and  $88\% \pm 7\%$ .

**Conclusion:** Lipectomy is a safe, effective and durable approach to make deep arterialized forearm veins accessible to routine cannulation for hemodialysis in obese patients.

#### RECOMBINANT HUMAN PANCREATIC ELASTASE (PRT-201) DILATES THE ARTERIOVENOUS GRAFT (AVG) OUTFLOW VEIN AND INCREASES GRAFT BLOOD FLOW IN A PORCINE FEMORAL AVG MODEL

Burke S.K.<sup>1</sup>, Mendenhall H.V.<sup>2</sup>, LaRochelle A.W.<sup>2</sup>, Franano F.N.<sup>1</sup>

<sup>1</sup>Proton Therapeutics, Inc. Waltham - USA; <sup>2</sup>Charles River Laboratories, Shrewsbury - USA

**Background/Aim:** AVG surgery is often initially successful but ultimately fails, usually due to neointima formation, stenosis, and thrombosis. PRT-201 removes elastin fibers from blood vessels causing a change in vessel compliance and dilation. The aim of this study was to determine the effect of PRT-201 treatment on AVG outflow vein diameter and blood flow, AVG patency, and safety in pigs.

**Methods:** Twelve Yorkshire pigs (35-40 kg) underwent bilateral femoral artery to vein ePTFE graft (6 mm) implantation. The outflow vein of each graft (~3 cm) was randomly assigned to treatment with 0.33, 1.0, or 3.3 mg of PRT-201 or placebo in 2.5 mL of PBS applied topically to the external adventitial surface over 15 minutes. Vein diameter (digital photography with image analysis) and blood flow (Transonic vascular flow probe) were determined immediately before and after treatment. Following surgery the pigs were treated with meloxicam (NSAID) for pain and aspirin 81 mg and clopidogrel 75 mg daily. Twenty one days later the pigs underwent angiography to determine graft patency.

**Results:** All 24 AVGs were patent immediately following surgery. PRT-201 3.3 mg immediately increased vein diameter by  $47 \pm 39\%$  ( $4.6 \pm 1.3$  to  $6.4 \pm 0.6$  mm, change  $1.8 \pm 1.2$  mm) and blood flow by  $79 \pm 43\%$  ( $181 \pm 37$  to  $314 \pm 50$  mL/min, change  $132 \pm 56$  mL/min). There were no consistent changes in lower dose and placebo groups. A single pig treated with PRT-201 died following surgery secondary to a bleeding gastric ulcer possibly due to surgical stress, meloxicam, aspirin and clopidogrel. At 21 days, patent AVGs were seen in 3 of 6 placebo, 5 of 6 0.33 mg, 5 of 5 1.0 mg, and 4 of 5 3.3 mg AVGs.

**Conclusion(s):** PRT-201 at a dose of 3.3 mg resulted in an immediate increase in AVG outflow vein diameter and blood flow. AVG outflow vein diameter and blood flow at the time of surgery have been associated with improved AVG 1° and 2° patency (Johnson, Surgery 1998). Additional animal studies and human clinical trials are planned.

#### VASCULAR ACCESS IN PATIENTS TREATED WITH CHRONIC HEMODIALYSIS (HD) FOR 30 YEARS OR MORE

J. Buturovič -Ponikvar<sup>1</sup>, V. Peršič<sup>1</sup>, Malovrh<sup>1</sup>, Z. Ceglar<sup>2</sup>, S. Saksida<sup>3</sup>, S. Kapun<sup>4</sup>, R. Ponikvar<sup>1</sup>

<sup>1</sup>Department of Nephrology, University Medical Center Ljubljana, <sup>2</sup>Dialysis center - General Hospital Izola, <sup>3</sup>Dialysis center - General Hospital Nova Gorica, <sup>4</sup>Nefrodial Krško - Slovenia

**Aim:** To present vascular access in patients treated by HD for 30 years or more.

**Methods:** From Slovenian RRT Registry patients that started dialysis in 1978 or earlier were identified. Data on vascular access on April 2008 are presented.

**Results:** 16 patients were alive, being treated mainly by chronic HD for 30 years or more (mean  $32 \pm 1.7$  years, 30-35 years and 2 months). There were 7 men and 9 women, median age  $62 \pm 12$  years (range 46-84). They started HD at the age of  $30 \pm 12$  years (13-50). None had diabetes. Vascular access in 9/16 patients was forearm AV fistula, in 6 on the left side and in 3 on the right side. Two patients had their primary AV fistulas still in function for 31 and 35 years (without salvage procedure). Two patients started HD with AV shunt on the leg (for half and one year), after that forearm AV fistulas were constructed, still in function after 30 and 32 years. In the remaining 5 patients multiple salvage procedures (percutaneous angioplasty, thrombectomy and reanastomosis, with «jump» PTFE graft in one patient) or new AV fistula were performed. Vascular access in 4/16 patients was PTFE graft, in two on the thigh, in one on the arm and in one on the forearm. In 3/16 patients vascular access was temporary, non cuffed single-lumen hemodialysis catheter (in two jugular precurved, in one subclavian, Medcomp, USA) locked with 4% or 30% citrate in interdialysis period, used as the vascular access from 4.5 to 11 years. Mupirocin was applied at the exit site. The catheters were exchanged over guide-wire because of mechanical damage, approximately once in 1-2 years. None of these 3 patients had catheter-related sepsis or exit site infection. Two are dialyzed in single-needle dialysis mode, in the third the catheter is used as the «artery» and the blood is returned in the peripheral vein on both legs interchangeably. Before catheters these patients had multiple AV fistulas and PTFE grafts.

**Conclusion:** Although native AV fistula was predominant type of vascular access, long term (more than 30 years) HD survival is possible with the combined use of AV fistula, PTFE graft and hemodialysis catheter.