length, there was no difference in linear elasticity (deformation 13.3% in tested specimen compared to 12.3% in control; P=0.74). DSC and TMA showed decrease in glass transition temperature up to 4°C but thermo-tropic transition was comparable to control.

Conclusions: Simulated physiological in vivo hydrodynamic fatigue has no significant degradative effect on an innovative stent-graft from POSS-PCU nanocomposite polymer. Sutureless technology incorporating nitinol stents proved to be robust with no separation over accelerated 10-year cycle.

Author Disclosures: M. Ahmed: Nothing to disclose; **R. Bakhshi**: Nothing to disclose; **A. Darbyshire**: Nothing to disclose; **M. Y. Desai**: Nothing to disclose; **J. Eaton-Evans**: Nothing to disclose; **G. Hamilton**: Nothing to disclose; **A. M. Seifalian**: Nothing to disclose; **Z. You**: Nothing to disclose; **X. Zhou**: Nothing to disclose.

PS222.

Percutaneous Peri-Adventitial Guanethidine Delivery Induces Renal Artery Sympathectomy: Preclinical Experience and Implication for Refractory Hypertension

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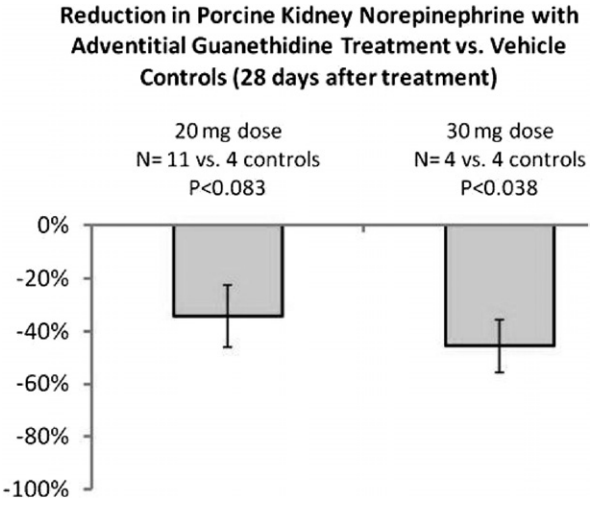
Objectives: Renal efferent sympathetic nerve overactivity is contributory to the hypertensive state. Guanethidine is known to induce an autonomic denervation through an immune mediated pathway.We hypothesized that guanethidine could be safely delivered into the renal perivascular space to produceautonomic denervation and reduction in renal norepinephrine (NE) content.

Methods: A micro-infusion catheter (Mercator MedSystems) was introduced via the femoral artery into the renal arteries of (N=11) female swin.Two to three ml of guanethidine (20-30 mg) or vehicle, each with 20% dilution of contrast, was infused into the adventitial space under fluoroscopic guidance. The primary efficacy endpoint in this study was kidney NE tissue content measured by high-performance liquid chromatography.Secondary outcomes included histological evidence of renal artery denervation to corroborate efficacy and renal artery injury and neural inflammation scores.

Results: There were 18 treated renal arteries and 4 vehicle controls in this study.There was 100% procedural success in the delivery of guanethidine or vehicle to the renal artery adventitial space.The mean renal artery injury scores were not different between treated and control pigs (P=NS), and in all cases the endothelial integrity was maintained.However,in all guanethidine-treated cases there was histological evidence of peri-neural inflammation and nerve destruction whereas the nerves appeared normal in all control animals.There was an overall decrease in renal cortex NE content in a dose dependent fashion, control 245±34 ng/g tissue, 20 mg dose 161±18 ng/g tissue and 30 mg dose 133±16 ng/g tissue, P=.038 (Figure).

Conclusions: These data support the hypothesis that guanethidine can be delivered safely and efficiently into the renal peri-adventitial space through a novel minimally invasive technique.Further, renal NE content is significantly reduced suggesting that this could be a viable procedure in the treatment of refractory sympathetic-driven hypertension.



Author Disclosures: W. J. Gasper: Nothing to disclose; **S. B. Jacobson**: Nothing to disclose; **R. M. Jones**: Nothing to disclose; **S. Misra**: Nothing to disclose; **C. Owens**: Nothing to disclose; **K. Seward**: Mercator MedSystems, Ownership or PartnershipR43HL102998, Research Grants.

PS224.

Porcine Mesenchymal Stem Cell Labeling with MRI Contrast Agent Ferex

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Objectives: Mesenchymal stem cell (MSC) transplantation is currently being investigated in porcine abdominal aortic aneurysm (AAA) models for its potential as regenerative treatment. Reliable methods of labeling and tracking MSCs are necessary to evaluate their effects. This study aims to evaluate in vitro performance of Ferex, a superparamagnectic iron oxide that can be tracked by magnetic

resonance imaging (MRI) and potentially be used for in vivo labeling of porcine MSCs.

Methods: MSCs were isolated from pig bone marrow aspirates via Ficoll Paque separation and expanded in culture. MSCs were incubated with varying concentration of Ferex and 2 cationic transfecting agents protamine sulfate and Poly-L-Lysine (PLL). MSCs were then analyzed for cellular viability, phenotypic preservation and Ferex uptake. To confirm intracellular Ferex uptake, transmission electron microscopy (TEM) was performed. An MRI phantom was conducted by imaging known numbers of Ferex-labeled cells and examining the correlation between resulting MR signals and cell number.

Results: Ferex uptake was greatest with PLL and 200 ug/ml Ferex (2.7 ± 1.4 pg Fe/cell), with 87.1% cell viability. Flow cytometry analysis demonstrated that Ferex-labeled cells maintained phenotypic expression consistent with MSCs, with positive CD90 signals and negative CD45 and CD117 signals. TEM confirmed that Ferex particles localized to lysosomes of labeled cells. Phantom studies demonstrated a strong correlation (R2=0.9771) between cell number and in vitro MR signaling values.

Conclusions: As a result, these findings indicate that Ferex may be used as labeling agent for in vivo tracking of transplanted MSCs in porcine AAA models.

Author Disclosures: K. Briley-Saebo: Nothing to disclose; **P. L. Faries**: Nothing to disclose; **D. K. Han**: Nothing to disclose; **M. L. Marin**: Nothing to disclose; **M. Shahrivar**: Nothing to disclose; **A. Tye**: Nothing to disclose.

PS226.

Nitrite Increases Fibroblast Migration and Proliferation and May Represent a Viable Source of Nitric Oxide for Wound Healing

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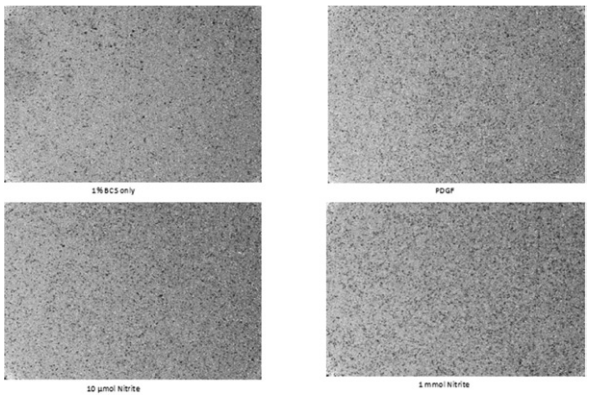
Objectives: Nitric oxide (NO) plays an essential role in wound healing. NO synthase (NOS) knockout mice had delayed wound closure that was reversed by NOS gene transfer. Nitrite, an endproduct of NO metabolism, can serve as a reservoir for NO through conversion by oxidoreductases. Thus, we hypothesize that nitrite may be a source of NO in wound healing.

Methods: NIH3T3 fibroblasts were treated with 1% serum, 10 nmol PDGF, or increasing levels of nitrite. Proliferation was measured at 6 hrs with 3H-thymidine. Cell migration was measured on Boyden Chambers with PDGF or nitrite in the lower chamber. Giemsa staining was performed at 4 hrs. Western blot for xanthine oxidoreductase (XOR), a key oxidoreductase in nitrite conversion, was performed on cytosol from NIH3T3 cells and healing mouse wounds.

Results: PDGF increased NIH3T3 proliferation vs. 1% serum (158% ± 48). Nitrite increased proliferation in a dose dependent fashion with a doubling of proliferation at 1mM (215% ± 18, P=0.013 vs. PDGF). A similar response was seen with migration. Ten uM nitrite promoted similar migration as PDGF (Figure). Western blot showed XOR expression in NIH3T3 cells and in the wounds.

Conclusions: Fibroblasts express XOR and can convert nitrite to NO. Nitrite stimulated both proliferation and migration. Healing wounds also express XOR. Thus, nitrite may be a feasible method of NO delivery in wound healing. The role of nitrite in wound healing in vivo is being assessed.



Low doses of nitrite induce migration of NIH3T3 cells through a Boyden chamber similar to 10nmol PDGF.

Author Disclosures: F. Entabi: Nothing to disclose; **G. Hong**: Nothing to disclose; **M. Madigan**: Nothing to disclose; **E. Tzeng**: Nothing to disclose; **B. Zuckerbraun**: Nothing to disclose.

PS228.

LPS Induces Angiogenic Behavior in Human Umbilical Vein Endothelial Cells In Vitro through Purinergic Signalling

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Objectives: Purinergic signalling regulates the downstream effects of innate immune activation through Toll-like receptors (TLRs). We have previously demonstrated that innate immune ligands play an important role in angiogenesis. Thus, we hypothesize that purinergic signalling regulates TLR4-mediated angiogenic functions.

Methods: Human umbilical vein endothelial cells (HUVECs) plated on Matrigel-coated wells. The cells were treated with media alone, LPS 1ug/mL, LPS with nucleotide-hydrolyzing enzyme apyrase, or LPS with heat-inactivated apyrase. EC capillary tubule formation was analyzed by measuring tube length using Metamorph software.