**OTHER**

**CRT-605**

Multimodality Imaging Demonstrating Liposomes Preferentially Home to Regions of Myocardial Injury

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**INTRODUCTION** Nanoparticles may serve as a promising means to deliver novel therapeutics to the myocardium following myocardial infarction. We assessed whether lipid-based liposomal nanoparticles specifically target injured myocardium following intravenous injection.

**METHODS** C57 male mice that underwent LAD ligation surgery with 45 minutes of ischemia followed by reperfusion (I/R) and then received tail-ven injection 24 hours following surgery with either Gd-DTPA labeled, fluorescent NBD-labeled liposomes (n=7) or a saline vehicle control (n=7). The hearts were harvested 24 hours later and underwent T1 and T2-weighted ex vivo MR imaging using a 7 Tesla Bruker magnet. The hearts were sectioned for immunohistochemistry and also optical fluorescent imaging using an IVIS imaging system.

**RESULTS** The mean size of the liposomes was 100 nm by dynamic light scattering. T1-weighted imaging demonstrated a significant increase in signal intensity in the LAD territory vs the posterior wall with liposomes compared with control (41±10% vs 9±2%, p=0.006). Optical imaging demonstrated significant increase in the LAD territory vs the posterior wall for animals that received liposomes compared with those that received control (163±31% vs 13±14%, p=0.001). The Figure shows T1-weighted MR images and optical images below. Fluorescent microscopy demonstrated the presence of green fluorescence consistent with NBD-labeled liposomes within the infarct area of hearts from mice that received liposomes while there was no green fluorescence in the hearts of mice that received injection of saline control.

**CONCLUSIONS** Following a murine model of MI, liposomes traffic to the heart and preferentially home to regions of myocardial injury. These liposomes can be loaded with therapeutic agents to deliver novel agents directly to regions of myocardial injury.

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**TECHNOLOGY**

**BIODEGRADABLE POLYMERS**

**CRT-700**

Endovascular AAA Bioabsorbable Graft: A Pilot Study Demonstrating A Confluent Endothelium And Neointissue Formation In Swine

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**BACKGROUND** A confluent endothelium is needed to reduce thrombosis in vascular grafts, including EVAR stent-grafts. A pilot study was designed to assess the tissue formation and cellular response to an endovascular stent-graft containing a bioabsorbable graft material designed to treat aneurysms through endovascular tissue regeneration. The objective of the study was to determine the in vivo response of the graft material in an AAA model.

**METHODS** A peritoneal patch was used to form an AAA in swine for 2 weeks then treated with the bioabsorbable stent-graft (n=7). The stent-graft consisted of a synthetic polymer graft material sutured to a stent (Megalink, Guidant, USA). The stent-graft was delivered endovascularly using an 11F sheath with a dilation catheter (Powerflex P3, Cordis, USA). After treatment for 28 days, the animals were sacrificed and the tissue was examined through both gross and microscopic histology to determine the presence of endothelial cells (CD-31 antibody), smooth muscle cells (SM a-actin antibody), collagen (Masson’s Trichrome) and any adverse tissue responses (H&E). Physical attachment of the graft to the vessel and gross appearance of the lumen surface were also noted.

**RESULTS** The stent-grafts placed endovascularly demonstrated no evidence of blood flow into the aneurysmal sac upon deployment, based on angiography and ultrasound imaging. During the course of the study, no endoleaks were observed in the treated animals. Upon gross examination after sacrifice at 28 days, the graft material appeared well adhered to the aorta with a shiny, white appearance on the lumen surface. No evidence of thrombi was noted. The graft demonstrated a confluent endothelial lining as evidenced by histologic staining for CD-31 antibody which positively stained a single layer of cells on the luminal surface. The new endothelium was supported by a thin neointima consisting of collagen. In addition, the SM a-actin antibody stain indicated the presence of smooth muscle cells on the abluminal portion of the graft with cells penetrating the porous graft material. No significant adverse tissue response was noted. The graft material was integrated with the vessel wall and grossly intact without any defects or degradation.

**CONCLUSIONS** A stent-graft containing a bioabsorbable graft material was successfully deployed endovascularly in a surgical swine model. The results of our pilot study suggest that aneurysms may be treated using an appropriate bioabsorbable material for endovascular tissue regeneration.

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**BIODEGRADABLE SCAFFOLDS**

**CRT-701**

Clinical Outcomes Of Overlapping Absorb BVS For The Treatment Of Long Coronary Lesions: Data From The Italian RAI Multicenter Registry

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**AIMS** BMS and DES overlap is associated with impaired clinical outcomes at long-term follow-up, whereas data on the impact of overlap with overlapping everolimus-eluting bioreabsorable vascular scaffold (Absorb BVS) are scant. We report the procedural and mid-term clinical outcomes in a cohort of patients having at least one vessel treated with >2 overlapped Absorb BVS.

**CONCLUSIONS** A stent-graft containing a bioabsorbable graft material was successfully deployed endovascularly in a surgical swine model. The results of our pilot study suggest that aneurysms may be treated using an appropriate bioabsorbable material for endovascular tissue regeneration.