the mean tissue drug concentrations were lower in the atherosclerotic model compared to the healthy. Tissue concentrations are plotted in the figure below.

Conclusion: For a given DES, the basic shape of the PK curves between healthy and atherosclerotic models was similar. Tissue levels were lower in the atherosclerotic model compared to healthy out to 90 days. Differences in tissue drug concentration in atherosclerotic tissue may have implications for DES efficacy and delayed healing.

TCT-460
Anatomic Substrate for Renal Sympathetic Denervation: A Human Post-Mortem Histological Study
Farrell O Mendelsohn1, Nicholas L Deep2, Daniel S Atherton1
1Princeton Baptist Medical Center, Birmingham, AL; 2University of Alabama School of Medicine, Birmingham, AL

Background: Hypertension remains an uncontrolled with pharmacologic therapies. A novel catheter inserted into the renal artery has been shown to lower blood pressure by ablating the renal sympathetic nerves with radiofrequency energy delivered through the arterial wall (Ardian, Inc.). We report a histological study describing the anatomic substrate for this technique, specifically the microanatomy of the renal sympathetic nervous system.

Methods: Histological sections from proximal, middle, and distal renal artery segments from 9 renal arteries (6 human autopsies) were analyzed. Nerves were manually counted and their distance from the lumen-intima interface was measured using a micrometer. The nerves were then categorized by location into 0.5mm-wide “rings” that were arranged circumferentially around the renal artery lumen.

Results: The table shows the percent of nerves within each ring. 90.5% of all nerves in this study existed within 2.0mm of the renal artery lumen. Additionally, the number of nerves tended to increase along the length of the artery from proximal to distal segments (proximal=216; middle=323; distal=417).

Conclusion: Our analysis indicates that a great proportion of renal sympathetic nerves have close proximity to the lumen-intima interface and should thus be accessible via renal artery interventional approaches such as catheter ablation. This data provides important anatomic information for the development of ablation and other type devices for renal sympathetic denervation.

TCT-461
Animal Studies on the Mechanisms and Radiofrequency Catheter Ablation of the Syncope with Vasovagal Syncope —Radiofrequency Ablation of Cardiac Nerve Attenuates Bezold-Jarisch Reflex in Canine
Chunshan Lu, Chengjian Guo, Dongfeng Fang, Li Guo, Dongfang He, Kejuan Ma, Bing Liu, Jinghua Liu, Yingchuan Zhang
Cardiology, Beijing Anzhen Hospital, Beijing, China

Background: The Bezold—Jarisch reflex (BJR) is one of the main causes for vasovagal syncope(VVS). Blocking the effarent pathways of the vagus ganglia in the heart may attenuate the BJR.

Methods: Six mongrel dogs were anesthetized and their chest were opened through a right thoracotomy to expose the Interventricular sulcus fat. Veratridine was injected into the left ventricle at bolus doses of 15 µg/kg through a catheter to induce BJR. The sinus cycle length (SCL), systolic arterial pressure (SAP), diastolic arterial pressure (DAP), mean arterial pressure (MAP), left ventricle systolic pressure (LVSP), left ventricle diastolic pressure (LVDVP), left ventricle pressure (LVP) were measured under the baseline and after ablation of fat pad; the average peak of the above parameters were calculated. Then the same dose of veratridine was used in the heart under the impact of the mitral annulus, and potential nerve ablation and the changes of the above parameters were observed.

Results: BJR was successfully induced in the 6 animals; the animals has prolonged sinus cycle length (SCL) and decreased MAP and MLVP. After ablation, the prolongation of SCL after injection of veratridine was markedly reduced [229.2 ± 92.3 ms vs 39.3 ± 14.1 ms, p=0.01]. All the pressures were decreased after injection of veratridine, with significant decrease found only for DAP and MAP both p<0.05.

Conclusion: Ablation of the interventricular sulcus fat and endocardial nerve potential fat can effectively attenuate the decrement of heart rate and the decrement of DAP and MAP during the BJR induced by veratridine, which provides a basis for the treatment of VVS.

TCT-462
Percutaneous Renal Sympathetic Denervation Exerts a Chronic Effect on Renal Hemodynamics and Plasma Norepinephrine Levels Using a Novel Catheter for Radiofrequency Ablation: Data from an Animal Study
Konstantinos Tisofou1, Vasiliis Papademetriou1, Kyriakos Dimitriadis1, Costas Thomopoulos1, Dimitris Tsiachris1, Vivian Tran3, Cary Hata3, Euljoon Park3, Apostolis Papalois1, Christodoulos Stefanidis1
1First Cardiology Clinic, University of Athens, Hippokration Hospital, Athens, Greece; 2Veterans Affairs Medical Center, George Washington University, Washington, DC, WA; 3St. Jude Medical, 100 Technology Drive, Irvine, CA

Background: The effect of renal sympathetic denervation (RSD) on chronic autoregulation of renal hemodynamics and plasma catecholamines has yet to be adequately explored. We investigated the effect of RSD (1 month post ablation), performed using a novel radiofrequency ablation catheter on renal hemodynamics [average peak velocity (APV), renal flow reserve (RFR) and resistive index (RI)] and on plasma norepinephrine levels.

Methods: In 9 anesthetized female juvenile farm swines (mean weight 34.5 kg) a 0.014 inch Doppler flow wire was introduced in the renal artery for the measurement of [average peak velocity (APV), renal flow reserve (RFR) and resistive index (RI)] and on plasma norepinephrine levels.

Results: After dopamine administration (p=NS), RFR was calculated as the ratio of periphrastic to basal peak velocity. RI was estimated as (peak systolic velocity – end-diastolic velocity)/peak systolic velocity. APV, RFR and RI were measured before and 1 month after RSD. The RSD was achieved via the lumen of the main renal artery with the novel catheter connected to a radiofrequency generator from St. Jude Medical according to pre-specified algorithm. Plasma norepinephrine was estimated before and 1 month after ablation.

Conclusion: Catheter-based RSD augmented APV and decreased RFR. RI and norepinephrine levels persistently and significantly at 1 month post ablation in healthy swines. These results support the chronic effect of RSD by the radiofrequency ablation catheters on renal hemodynamic and catecholamines balance even in a healthy animal setting.