PTCs did not increase atherosclerosis, comparing to the other two groups. Next, to evaluate the direct interaction of ACT and renin in PTCs for promoting atherosclerosis, KAP-human AGT (KAP-hAGT) and KAP-hREN double transgenic mice were fed a Western diet for 12 weeks.

**Results:** Although immunostaining confirmed the presence of human AGT and human renin in PTCs, double transgenic mice did not have increased percent atherosclerotic lesion area, compared with either wild-type or single transgenic littermate groups. Surprisingly, retired male double transgenic breeders (46–67 weeks old) showed severe atherosclerosis spontaneously without Western diet feeding, while their single transgenic littermates had minimal to modest atherosclerotic lesions.

The sample size was small so a statistical analysis was not performed.

**Conclusions:** The presence of human AGT in liver or PTCs with combination of human renin in PTCs did not augment Western diet-induced atherosclerosis in mice. Further studies with greater numbers are needed to determine whether retired male breeders containing human AGT and human renin in PTCs develop severe atherosclerosis.

**Author Disclosures:** N. Amioka: Nothing to disclose; M. Nakada: Nothing to disclose; J. A. Howard: Nothing to disclose; J. C. Moore: Nothing to disclose; D. A. Oskowitz: Nothing to disclose.

### 22-VIRC-532-AHA-VD

**A Magnetic Sensor-Equipped Retrieval Aortic Rescue Stent Craft for Noncompressible Torso Hemorrhage**

Dahla M. Kenawy,1 Yifan Zhang,2 Moaatz Elsisy,3 Youngjue Chen,3 Marlene I. Garcia-Neuer,3 Mahmoud Abdel-Rasoul,1 William C. Clark,1 Bryan W. Tillman1. 1The Ohio State University Wexner Medical Center, Columbus, OH; 2University of Pittsburgh Swanson School of Engineering, Pittsburgh, PA; 3Ohio State University College of Medicine, Columbus, OH.

**Background:** Noncompressible torso hemorrhage has high mortality, often with difficulty mobilizing resources before exsanguination. We reported on a retrievable stent for damage control and human morphometric analysis, yet the gold standard of fluoroscopy for device placement is unfeasible in the austere environment. We hypothesized that a magnetic sensor could be used to position stents relative to an external magnet placed on an anatomic landmark in situations when fluoroscopy is not immediately available.

**Methods:** Two prototypes (sensor alone and with retrievable stent) were tested in a porcine model under anesthesia. A target electromagnet was placed on the xiphoid (position 0 cm). The sensor was placed in the aorta and measurements were obtained at 0, +4, and +12 cm from the magnet. Measurements were compared with fluoroscopy using a radiopaque ruler. To simulate the hostile trauma environment, the sensor was tested under the environmental conditions of tachycardia (epinephrine, heart rate 174, mean arterial pressure 139), hypotension (hemorrhagic shock mean arterial pressure 16), unstable transportation (vibration), and the presence of shrapnel. Data were compared with a t test of the mean difference between fluoroscopy and sensor readings.

**Results:** Mean differences between fluoroscopy and sensor readings for the sensor alone were normal 0.07 cm (P = 0.01); for the retrievable stent were normal 0.39 cm (P = 0.002). Mean differences for sensor with stent were normal 0.35 cm (P = 0.01); epinephrine –0.26 cm (P = 0.06); and hemorrhage –0.19 cm (P = 0.04). Mean differences for sensor with stent were normal 0.26 cm (P = 0.10); epinephrine –0.27 cm (P = 0.03); and hemorrhage –0.36 cm (P = 0.005). The Figure demonstrates greater sensor accuracy at 0 and +4 cm.

---

**Abstracts 13**

**Vascular Science**

**Volume**, **Number**