BARIATRIC ARTERIAL EMBOLIZATION AS TREATMENT FOR OBESITY: MECHANISMS USING HIGHLY CALIBRATED 50 MICRON EMBOLIC BEADS

Poster Contributions
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Background: Bariatric arterial embolization (BAE) is a new treatment for obesity. However, the mechanism of action is not well understood, including the effect of particle embolic size. Using a highly calibrated 50 µ X-ray-visible alginate embolic bead (XEB), we investigated the effect of BAE in immature swine.

Methods: BAE with XEBs was performed in the fundal arteries selected on a celiac DSA c-arm CT (CBCT, Siemens Artis Zee) using an anti-reflux microcatheter (Surefire mT) and 0.016" steerable guidewire in immature swine (n=6). Four pigs received sham injections to serve as controls. Gastric ulceration was assessed by endoscopy at 1-week post-BAE. Serial weekly weights were obtained for 1 month. XEB persistence by CBCT and hormonal alterations were assessed at 1 month post-BAE.

Results: In all BAE pigs, XEBs were visible during delivery, accurately delivered to the fundus and remained isointense over 4 weeks (165.4±77HU one-week vs. 158.5±84HU four-weeks, P=NS). Weight declined in BAE animals at one week (BAE: -0.9±2.3lbs; sham: 2.9±1.9lbs) and weight gain remained impaired at 4 weeks (8.3±2 vs. 13.6±2 lbs, P<0.01). Failure of BAE pigs to gain weight was accompanied by decreases in serum ghrelin (P<0.001) and increases in GLP-1 (P<0.001) yet PYY was unaffected. Ghrelin cell counts were diminished two-fold in the fundus of BAE pigs relative to shams (20.2±9.1 v. 36.7±10.6, P<0.003).

Conclusion: Small embolics used for BAE result in significant impairment in growth in immature swine with alterations in hormones affecting saity and hunger. These embolics remain intact in distal vasculature preventing neuroendocrine cellular repopulation in the stomach.