

Body Composition Changes at Computed Tomography after Left Gastric Artery Embolization in Overweight and Obese Individuals

Monday 11:35-11:45 AM | RC214-14 | Room: E350

PURPOSE

Left gastric artery embolization (LGAE) is currently under investigation as a potential bariatric therapy. This study aimed to characterize body composition changes in overweight and obese individuals who underwent LGAE.

METHOD AND MATERIALS

Institutional review board approval was obtained for this study. Eighty-nine patients who underwent LGAE for gastric bleeding between 1/2006 and 3/2018 were retrospectively reviewed. Of these, 61 patients were excluded for unavailable imaging or follow-up and 12 more patients were excluded for body mass index (BMI) below 25 kg/m². Computed tomography body composition parameters were analyzed at the L1, L3 and L5 lumbar levels in the remaining 16 overweight or obese patients with semiautomated imaging processing algorithms (MATLAB 13.0, Math Works, MA). Adipose tissue and skeletal muscle area were measured using threshold attenuation values between -190 to -30 Hounsfield Units (HU) and -29 to +150 HU, respectively. Total body fat index (BFI), subcutaneous fat index (SFI), visceral fat index (VFI) and skeletal muscle index (SMI) were determined ($[\text{tissue area (cm)}]^2 / [\text{height (m)}]^2$) at each lumbar level and summed. Excess body weight (EBW) was determined based on the Lorentz formula for ideal body weight. Changes in weight and body composition were analyzed with either Wilcoxon signed-rank test or paired Student's t tests based on the normality of the distributions.

RESULTS

Mean follow-up was 1.5 ± 0.8 months. Mean weight and body composition parameters pre-LGAE vs. post-LGAE as well as per cent change were calculated for body weight (87.9 ± 12.5 vs. 82.3 ± 13.9 kg, -6.4%, $p=0.03$), BMI (30.0 ± 4.3 vs. 28.3 ± 4.9 kg/m², -6.3%, $p=0.005$), EBW (23.3 ± 10.6 vs. 17.7 ± 12.6 kg, -24.1%, $p=0.003$), BFI (128.6 ± 54.7 vs. 123.9 ± 59.5 cm²/m², -3.7%, $p=0.03$), SFI (81.7 ± 44.5 vs. 78.4 ± 43.7 cm²/m², -4.1%, $p=0.03$), VFI (35.8 ± 17.8 vs. 34.3 ± 21.6 cm²/m², -4.1%, $P=0.13$) and SMI (44.5 ± 7.2 vs. 41.5 ± 6.9 cm²/m², -6.8%, $p<0.001$).

CONCLUSION

Overweight and obese individuals who underwent LGAE had significant weight loss as a result of decreased body fat and skeletal muscle. However, visceral fat did not significantly decrease over the course of follow-up.

CLINICAL RELEVANCE/APPLICATION

This study quantitatively characterized changes in body composition as they pertain to weight loss after LGAE and highlights how this procedure may affect body fat and muscle mass.