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Titel des Beitrags: Software for automated MRI-based quantification of abdominal fat and preliminary evaluation in morbidly obese patients.

Abstract: To present software for supervised automatic quantification of visceral and subcutaneous adipose tissue (VAT, SAT) and evaluates its performance in terms of reliability, interobserver variation, and processing time, since fully automatic segmentation of fat-fraction magnetic resonance imaging (MRI) is fast but susceptible to anatomical variations and artifacts, particularly for advanced stages of obesity. Twenty morbidly obese patients (average BMI 44 kg/m(2)) underwent 1.5-T MRI using a double-echo gradient-echo sequence. Fully automatic analysis (FAA) required no user interaction, while supervised automatic analysis (SAA) involved review and manual correction of the FAA results by two observers. Standard of reference was provided by manual segmentation analysis (MSA). Average processing times per patient were 6, 6+4, and 21 minutes for FAA, SAA, and MSA (P< 0.001), respectively. For VAT/SAT assessment, Pearson correlation coefficients, mean (bias), and standard deviations of the differences were R = 0.950, +0.003, and 0.043 between FAA and MSA and R = 0.981, +0.009, and 0.027 between SAA and MSA. Interobserver variation and intraclass correlation were 3.1% and 0.996 for SAA, and 6.6% and 0.986 for MSA, respectively. The presented supervised automatic approach provides a reliable option for MRI-based fat quantification in...