

## Changes in facial fat in HIV-related lipoatrophy, wasting, and weight gain measured by magnetic resonance imaging

### ABSTRACT

**Background:** Changes in facial fat occurring over time in patients with HIV-related lipoatrophy have not been properly quantified. We aimed to define the longitudinal changes in facial fat compartments in patients with lipoatrophy and to compare these with changes accompanying wasting or weight gain. **Method:** Facial MRI scans were performed at baseline and repeated after a median of 10 months in 24 patients, of whom 12 had moderate to severe lipodystrophy continuing antiretroviral therapy, 5 lost weight, and 7 gained weight (more than 10% weight change). **Results:** Superficial facial fat decreased by a median of 5.2 mL ( $p = .03$ ) in patients with lipoatrophy, and 8 of 12 individuals showed more than 15% decrease (all of whom were taking stavudine). The decrease was mainly cheek fat. Superficial facial fat decreased by 6.0 mL in patients with weight loss ( $p = .04$ ) and increased by 20.2 mL ( $p = .02$ ) in patients with weight gain, and changes occurred in cheek fat, temporal fat, and masseter muscle and temporalis muscle compartments. **Conclusion:** MRI can detect substantial ongoing changes in facial fat in patients with facial lipoatrophy. A characteristic pattern of compartmental change distinguishes lipoatrophy from wasting and weight recovery. MRI should be considered for use in clinical trials of interventions to prevent or treat lipoatrophy and may be useful for documenting changes in individual patients during clinical follow-up.