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# Evolution of severe obesity and associated-comorbidities in HIV-positive patients with and without bariatric surgery: a case-control study

Victoria De Wit, Marc Delforge, Guy-Bernard Cadière, Stephane De Wit and Deborah Konopnicki

- Purpose:** Obesity and related-comorbidities are increasing among patients living with HIV (PLWH). Bariatric surgery (BS) is a safe and effective procedure in the general population but only small case series are available in PLWH. This study compares the evolution of severe obesity and associated-comorbidities in PLWH with or without BS.
- Methods :** Retrospective case-control study in PLWH and followed at Saint-Pierre University Hospital, with body mass index (BMI)  $\geq 40$  or  $\geq 35$  kg/m<sup>2</sup> with at least one comorbidity (diabetes, hypertension, sleep apnea syndrome, dyslipidemia); cases (n=27) underwent BS between 2006-2019; Controls (n=73) were PLWH matched (1 case/3 controls) on age, gender, ethnicity and BMI. Clinical and biological parameters were collected at 1, 2, 5 and 10 years follow up (FU) after BS.

## Results :



BMI  $\geq 40$   
or  
BMI  $\geq 35$  + comorbidity(ies)

**Bariatric surgery**  
= 27 cases

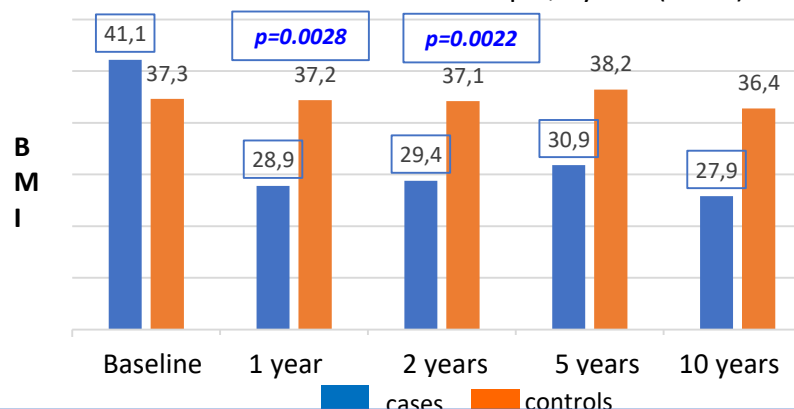
- 13 gastric bypass (GB)
- 13 sleeve gastrectomy (SG)
- 1 gastric banding

**No bariatric surgery**  
= 73 controls

Baseline characteristics	Cases with bariatric surgery ( n=27)	Controls without bariatric surgery (n=73 )	p
Median age (years)	42.2	44.4	NA (not applicable)
Female sex	85.2%	83.6%	NA
Sub Saharan African origine	77.8%	78%	NA
HIV heterosexually acquired	77.8%	85%	ns
HIV median CD4 count (IQR) (cells/ $\mu$ L)	646 (455-862)	704 (460.5-900.5)	ns
Under cART (%)	92.6%	91%	ns
Cumulative time with HIVRNA<50 cp/ml (IQR) (years)	6.7 (3.8-11.1)	5.7 (2.7-10.3)	ns
Weight (IQR) (kg)	112 (100-135)	100 (96-114)	0.0042
BMI (IQR) kg/m <sup>2</sup>	41.1 (37.8-45.4)	37.3 (36.4-39)	0.0017
BMI $\geq 40$ kg/m <sup>2</sup> (%)	63%	19.2%	0.0004

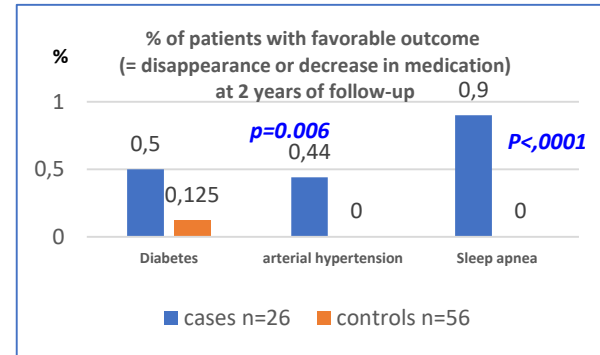
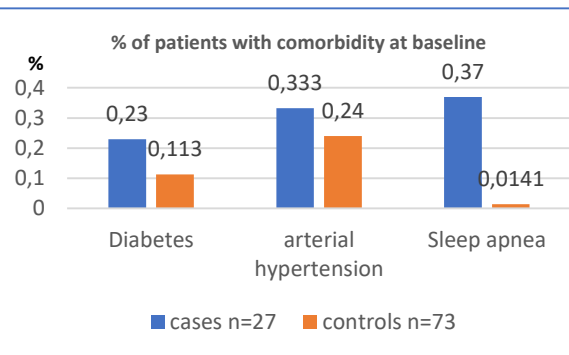
- Major Surgery complications rate was 11% and 2 cases needed a second BS because of weight regain, similarly to what is described in the literature in the general population.
- GB led to greater loss of excess weight than SG at 2 years (respectively 89.3% vs 60.8%,  $p=0.041$ ).

## Evolution of BMI: Median follow up 5,1 years (cases) and 4,1 years (controls)



Although controls had lower baseline BMI and both cases and controls received the same dietary advices, weight loss was statistically significantly greater in cases. All cases reached BMI  $\leq 30$  at all FU times while controls remained  $>35$  kg/m<sup>2</sup>.

## Evolution of comorbidities:



- HIVRNA suppression was maintained in all but 1 patient with transient dysphagia after SG; after switching cART for a smaller pill, HIVRNA became undetectable again
- Exposure to different cART that could have impact on weight (Tenofovir disoproxil or alafenamide/Integrase Inhibitors/Rilpivirine) was similar in cases and controls both at baseline and during follow up .

**Conclusion: Bariatric surgery among PLWH is safe and effective both on severe obesity and related comorbidities with no impact on viral suppression.**