

Bariatric Surgery versus Liraglutide Injection in Two Obese Emirati Sisters with Melanocortin-4 Receptor deficiency

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Melanocortin-4 receptor (MC4R) mutations are the commonest of rare monogenic forms of obesity. Bariatric surgery (BS) and High dose (3 mg) Liraglutide are common treatment modalities for obesity in general; however, the effects in MC4R mutations are not well-known. We report on the outcomes of BS and Liraglutide 3 mg in two Emirati sisters with this MC4R deficiency.

P1 started to become overweight at age 15. She managed to lose 20 kg through diet but regained this. Genetic testing revealed her to be heterozygous for the MC4R gene (T162I) mutation. She was morbidly obese (weight 114 kg, BMI 49 kg/m²) at age 33 and had laparoscopic sleeve gastrectomy (LSG); she lost 20 kg (BMI 40 kg/m²) in four months. P2 is the super obese younger sister of P1; she was found to have the same MC4R mutation. Weighing 176 kg (69 kg/m²) at 20 years of age, she was advised to lose weight through diet and exercise in preparation for BS (target BMI<60 kg/m²) which she did not manage to achieve in two years of follow-up. She was started on 3mg daily subcutaneous liraglutide injection thereafter and was able to lose 10 kg (BMI 66 kg/m²) in 1 year.

In keeping with our previous report, these cases show short-term efficacy of BS in patients with MC4R mutation. These reports also indicate that liraglutide treatment may be as efficacious in weight loss as in “common obesity”; LSG appears to be more effective than liraglutide in patients with heterozygous MC4R mutation.

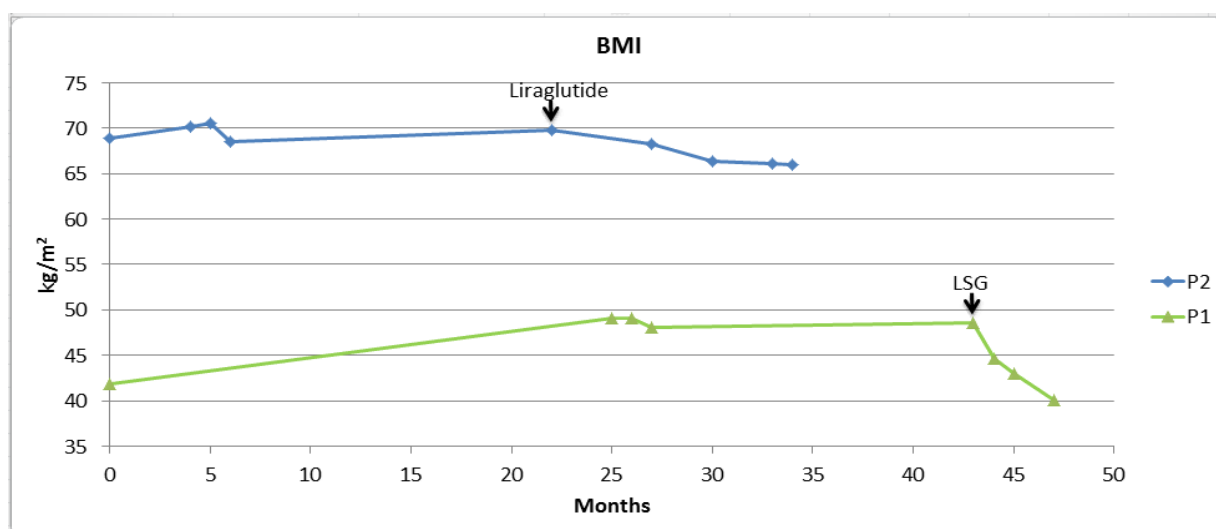


Figure 1. BMI change in two sisters (P1 and P2) heterozygous for MC4R mutation: effects of laparoscopic sleeve gastrectomy (LSG-P1) and liraglutide 3mg daily (P2) compared.