

Weight regain following the cessation of GLP-1 RAs for weight management: a systematic review and meta-analysis

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Introduction

GLP-1 receptor agonists (GLP-1 RAs) are transforming obesity treatment with patients in clinical trials losing 15-20% of their bodyweight. In a previous systematic review, we estimated a weight regain of 0.02 kg per month measured over 10 years following behavioural weight management programmes.

Here, we aimed to quantify the rate of weight regain after the cessation of GLP-1 RAs.

Methods

Trial registries, databases and forward citation searching until December 2023 were used to identify randomised and non-randomised trials using GLP-1 RAs (≥ 8 weeks) in adults with overweight/obesity and reporting measures of body weight ≥ 4 weeks after the end of treatment. Two independent reviewers screened the studies, extracted the data and assessed the risk of bias. Data were analysed using mixed and time-to-event models for all GLP-1 RAs and for newer and more effective GLP-1 RAs only (semaglutide and tirzepatide).

Results

Excluding duplicates, 7,944 titles and abstracts were screened, and 130 full texts were assessed. In total, 11 studies (6,370 participants) were included in the analysis. Eight of these studies were analysed as RCTs. The number of studies using each GLP-1 RA was: exenatide (1), liraglutide (7), semaglutide (2), tirzepatide (1). Seven studies were judged to have a low risk of bias, two studies were judged to have some concerns and two studies were judged to have a high risk of bias.

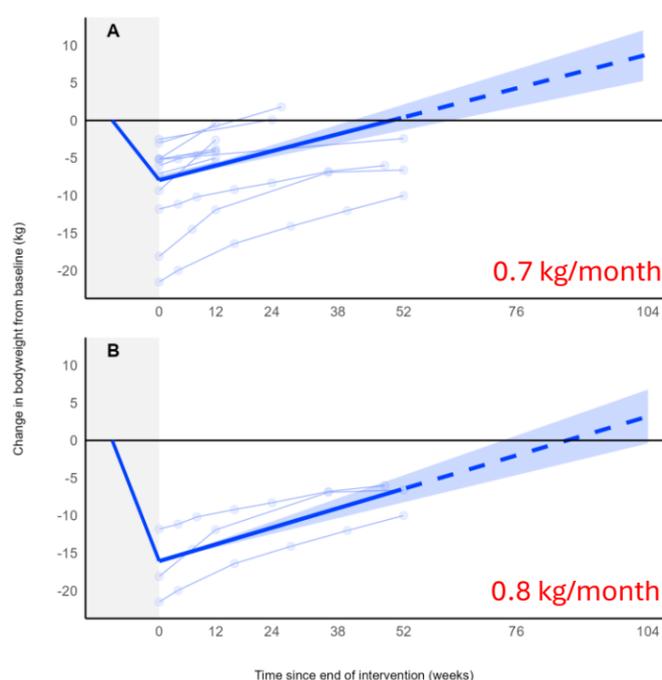


Figure 1. Change in bodyweight from baseline (kg) for all studies using GLP-1 RAs (A) and newer and more effective GLP-1 RAs (semaglutide and tirzepatide) (B).

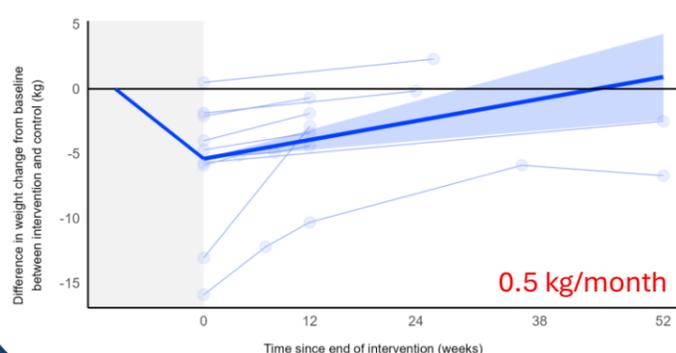


Figure 2. Difference in change in bodyweight from baseline (kg) between intervention and control for RCTs using GLP-1 RAs.

Conclusions

Cessation of GLP-1 RAs leads to return to baseline weight in less than 2 years with no difference to control groups in less than 1 year. This rate of regain is greater than observed following behavioural weight management programmes and sounds a cautionary note to the use of these medications without a more comprehensive approach to the treatment of obesity and prevention of weight regain.