

## **Baseline Predictors and Influence Of Early Weight Loss During An Intensive Weight Management Programme On Remission Of Type 2 Diabetes After 12 Months: Post Hoc Analysis Of The Diabetes Remission Clinical Trial (DiRECT)**

Michael E.J. Lean, Wilma S. Leslie, Naveed Sattar, George Thom, Elizabeth Louise. McCombie, Naomi Therese. Brosnahan, Alison C. Barnes, Roy Taylor, Alex McConnachie, For The Direct Study Team, Glasgow SCOTLAND, United Kingdom, Newcastle upon Tyne, United Kingdom

**Introduction:** An intensive weight management programme (Counterweight-Plus), including low-energy formula diet for up to 16 weeks, then a structured approach for weight-loss maintenance, delivered within routine primary care, has shown striking remissions of type 2 diabetes (T2DM diagnosis <6 years). Remissions at 12 months were achieved by 46% overall, by 73% with weight loss >10kg.

**Methods:** Baseline factors, and weight losses of 2-10kg from baseline, at 4, 6, and 8 weeks, were examined as potential predictors of remission of T2DM at 12 months (non-diabetic HbA1c >48mmol/mol, on no anti-diabetes medications) in the Intervention group (n=149, mean age 54 years, BMI 34.5kg/m<sup>2</sup>).

**Results:** Significant baseline predictors of diabetes remission at 12 months, all modest, included older age, lower HbA1c, fewer anti-diabetic and more antihypertensive drugs (both stopped at baseline) and higher blood pressure. Weight losses at 4, 6, and 8 weeks were significantly associated with remission of diabetes at 12 months. Sixteen patients (11%) failed to achieve 2kg weight loss at 6 weeks, none of whom achieved remissions of diabetes. However, 14 of these patients failed to start, or withdrew from the intervention, within 6 weeks. At 8 weeks, 31 patients (21%) had failed to achieve 6kg weight loss, of whom only 5 achieved remission (95% sensitivity, 32% specificity). However, 15 of these patients had withdrawn from treatment. Excluding earlier withdrawals from treatment, achieving <6kg loss had only 17% specificity for identifying failure to achieve remission.

**Conclusions:** Early weight loss predicts treatment success. However, many failing patients withdraw spontaneously and early 'stopping rules' would deny treatment to a significant minority who gain remissions from continued support.

**Funding:** Diabetes UK. Support-in-kind from Cambridge Weight Plan and Counterweight Ltd.