

CONCLUSION

In a long-term cohort study, the high-hematocrit and normal-hemoglobin groups had faster progression to renal failure. Diabetic patients with high hematocrit levels should be monitored using HbA1c levels as an indicator for long-term glycemic control and may need intensive risk control.

KEYWORDS

diabetes mellitus, high hematocrit, normal hemoglobin, diabetic nephropathy, Surin Hospital

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EFFECTIVENESS OF A STRUCTURED TRI-PHASIC INTENSIVE WEIGHT MANAGEMENT PROGRAMME ON DIABETES REMISSION IN MULTI-ETHNIC ASIANS: AN INTERIM ANALYSIS

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INTRODUCTION

Evidence from the primary care-led United Kingdom Diabetes Remission Clinical Trial (DiRECT) demonstrated that type 2 diabetes mellitus (T2D) can be reversible through an intensive, very low-calorie diet (VLCD)-based weight management programme. The structured programme comprised three phases: total diet replacement (Phase 1: ~3 months), food reintroduction (Phase 2: ~2 months) and weight maintenance (Phase 3: up to ~24 months). The generalizability of the findings to the Asian populations is unclear, given the distinctiveness of the Asian diabetes phenotype. Modeled after the DiRECT programme, we evaluated the effectiveness of the tri-phasic approach in weight loss and diabetes remission among multi-ethnic Asians with T2D.

METHODOLOGY

Since July 2022, T2D patients have been recruited into the programme at a secondary care diabetes centre in the northern region of Singapore. The inclusion criteria were age 21–65 years, clinically diagnosed with T2D, diabetes duration of 0–6 years, HbA1c $\geq 6\%$ (on glucose-lowering medications) or $\geq 6.5\%$ (on diet control), body mass index (BMI) of 27–45 kg/m² and no insulin use. The prescribed energy intake was 800 kcal (Phase 1), 1000 kcal (Phase 2) and 1200–1500 kcal (with exercise; Phase 3) per day. All glucose-lowering medications were stopped at programme initiation. The monthly percentage of total weight loss (%TWL) was calculated. Real-time glucose levels were monitored for 14 days from the initiation of each phase using the FreeStyle Libre system. Diabetes remission, defined as HbA1c $< 6.5\%$ and fasting plasma glucose < 7 mmol/L off glucose-lowering medications for at least 3 months, was assessed at the end of Phase 1 and Phase 2.

RESULTS

At the time of analysis, 16 patients (age: 34 ± 7 years, 68.8% men, BMI: 35.1 ± 4.2 kg/m²) with a median diabetes duration of 2 years and mean baseline HbA1c of $6.94 \pm 1.40\%$ were enrolled into the programme, of which 12 and 11 of them had Phase 1 and Phase 2 data, respectively. A median daily Libre glucose reading of < 7.0 mmol/L was recorded on Day 3 of VLCD without medications. On Phase 1 completion, body weight had dropped from baseline 103.2 to 94.0 kg ($p = 0.003$), achieving 8.5% TWL. Additionally, levels of HbA1c, triglycerides, and liver enzyme decreased while uric acid increased significantly (all $p < 0.05$). Seventy-five percent ($n = 9/12$) of patients experienced diabetes remission. All patients who attained $\geq 10\%$ TWL ($n = 5$) had diabetes remission. Notably, the non-remitters in the $< 5\%$ TWL ($n = 2/5$) and 5–9.9% TWL ($n = 1/2$) categories displayed relatively good glycemic control despite modest weight loss. At the end of Phase 2 (food reintroduction), mean weight had increased moderately from 94.0 to 98.4 kg ($p = 0.003$), corresponding to 4.3% TWL. Generally, the median daily glucose levels were kept within normal range during Phase 2. The diabetes remission rate decreased to 63.6% ($n = 7/11$), attributed to one patient with $< 5\%$ TWL experiencing a diabetes relapse. Two patients shifted from the $\geq 10\%$ TWL category to the 5–9.9% TWL category, but they remained in remission.

CONCLUSION

The short-term interim results show that Asians respond favorably to the weight management programme, achieving a high diabetes remission rate that is comparable to that of bariatric surgery, albeit having a variable degree of weight loss. However, longer observation is required to ascertain the sustainability of diabetes remission.

KEYWORDS

type 2 diabetes, weight loss, diabetes remission, very low-calorie diet