ABSTRACT

OBJECTIVES: Despite being the most effective blood glucose lowering therapy, the majority of patients with type 2 diabetes do not achieve adequate glycemic control. There is a growing body of evidence that introduces clinical microsimulation in diabetes management. We aimed to assess the impact of the AUTONOMY Q1D algorithm on glycemic control, treatment escalation, and clinical outcomes among patients with type 2 diabetes.

METHODS: This is a randomized clinical trial comparing the AUTONOMY Q1D algorithm to the current clinical practice. The trial was conducted at 23 sites across the USA. Inclusion criteria were patients with type 2 diabetes, currently taking basal insulin plus oral anti-diabetic medications, and with average HbA1c levels ≥7%. The primary outcome was the reduction in HbA1c levels from baseline to 3 years. Secondary outcomes included safety, treatment escalation, and cost-effectiveness.

RESULTS: A total of 656 patients were randomized to the AUTONOMY Q1D algorithm (n = 328) or standard of care (SOC) (n = 328). At 3 years, the HbA1c levels were significantly lower in the AUTONOMY Q1D group compared to the SOC group (P < 0.001). The reduction in HbA1c was -0.91% in the AUTONOMY Q1D group and -0.56% in the SOC group. The treatment escalation rate was lower in the AUTONOMY Q1D group compared to the SOC group (P < 0.001). The cost-effectiveness analysis showed that the AUTONOMY Q1D algorithm was more cost-effective than the SOC, with a lower incremental cost-effectiveness ratio of $2,605 per quality-adjusted life-year (QALY) gained.

CONCLUSIONS: The AUTONOMY Q1D algorithm is effective in improving glycemic control, reducing treatment escalation, and increasing cost-effectiveness in patients with type 2 diabetes. The findings suggest that this algorithm may be a valuable tool for healthcare providers in managing patients with type 2 diabetes.