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WHO SUCCEEDS IN INSULIN DEINTENSIFICATION? REAL-WORLD PREDICTORS AND MODIFIABLE FACTORS FROM PRIMARY CARE

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INTRODUCTION

Insulin therapy is essential in the management of type 2 diabetes mellitus (T2DM), but is often associated with treatment burden, hypoglycemia, and potential overtreatment. Insulin deintensification is increasingly recommended for appropriately selected patients; however, there is limited real-world evidence to guide patient selection and to identify modifiable factors that influence successful insulin deintensification. This study aimed to identify clinical predictors, including modifiable factors, associated with successful insulin deintensification in a primary care setting.

METHODOLOGY

A multicentre retrospective observational study was conducted across seven government primary care clinics in the Petaling District. Adult patients with T2DM undergoing insulin deintensification were included. Successful insulin deintensification was defined as maintenance or improvement of hemoglobin A1c following insulin discontinuation, dose reduction, or reduction in injection frequency. Paired outcomes were analyzed using the Wilcoxon signed-rank test. Between-group comparisons were performed using the Mann-Whitney U test and Chi-square or Fisher's exact test. Multivariable logistic regression was used to identify independent predictors of successful insulin deintensification.

RESULTS

A total of 261 patients were included. Glycemic control remained stable following insulin deintensification ($p = 0.334$). Significant reductions in body weight (-0.41 kg, $p = 0.012$) and total daily insulin dose (23.1% reduction, $p < 0.001$) were observed. Univariate analysis did not demonstrate significant differences between groups. However, multivariable logistic regression identified SGLT-2 inhibitor use (aOR 3.23, 95% CI 1.28–8.18, $p = 0.013$) and regular SMBG (aOR 2.00, 95% CI 1.05–3.81, $p = 0.035$) as independent predictors of successful insulin deintensification.

CONCLUSION

Insulin deintensification can be successfully implemented without compromising glycemic control. Identified predictors, including modifiable factors such as SGLT-2 inhibitor use and SMBG, provide clinically actionable insights to guide patient selection and treatment optimization. These findings challenge the traditional reluctance toward insulin deintensification and support a more evidence-based and individualized approach in routine clinical practice.