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A PROSPECTIVE STUDY IN INSULIN REGIMEN DE-ESCALATION FROM MULTIPLE DAILY INJECTION IN PATIENTS WITH POORLY CONTROLLED TYPE 2 DIABETES MELLITUS

Yik Hin Chin¹, Xun Ting Tiong², Noor Lita Adam³, Subashini Rajoo⁴, Chin Voon Tong⁵, Miza Hiriyanti Binti Zakaria⁶, Daanisha Nayar¹, Sze Wei Lim¹, Siew Hui Foo¹

¹Endocrine Unit, Hospital Selayang

²Clinical Research Centre, Sarawak General Hospital, Institute for Clinical Research

³Endocrine Unit, Hospital Tuanku Jaafar Seremban

⁴Endocrine Unit, Hospital Kuala Lumpur

⁵Endocrine Unit, Institut Endokrin, Hospital Putrajaya

⁶Endocrine Unit, Hospital Sultanah Maliha

INTRODUCTION

Multiple daily insulin injections, while effective for glycemic control, impose considerable costs on healthcare systems and carry inherent risks including hypoglycemia, weight gain, and poor treatment adherence. This study evaluates the glycemic effects of insulin regimen de-escalation from multiple daily injections in poorly controlled type 2 diabetes mellitus (T2DM) patients and explores the predictors of successful insulin de-escalation.

METHODOLOGY

This is a multi-centred, prospective observational study of adult T2DM patients on multiple daily insulin injections with hemoglobin A1c (HbA1c) 7–12% who underwent de-escalation to one or two injections. Patients were reassessed at 3 months and 6 months. Primary endpoint was change in HbA1c from baseline. Secondary endpoints were changes in body weight, hypoglycemia frequency, treatment adherence and predictors of successful insulin de-escalation defined by at least a 0.3% reduction in HbA1c while on de-escalated regimen.

RESULTS

A total of 80 patients were included. HbA1c improved from 9.23 to 8.52% ($p < 0.001$) with total daily insulin dose reduction from 0.81 ± 0.35 units per kg to 0.46 ± 0.24 units per kg. Symptomatic hypoglycemia decreased from 22.5 to 5.0%. Insulin adherence improved from 50.0 to 92.3%. Body weight decreased by 1.4 kg. Forty-nine patients (61.3%) were successfully de-intensified. Factors associated with successful insulin de-escalation included a high baseline HbA1c, high fasting blood glucose and higher estimated glomerular filtration rate, while increased age, disease duration and being Indian were associated with unsuccessful insulin de-escalation. After adjustment of the confounders, only HbA1c (OR 2.07, 95% CI 1.23–3.46, $p = 0.006$) and the status of being Indian (OR 0.21, 95% CI 0.05–0.94, $p = 0.041$) remained as significant positive and negative predictors respectively for successful insulin de-intensification.

CONCLUSION

Insulin regimen de-escalation, when combined with optimized oral glucose-lowering agents, improved glycemic control and treatment adherence while reducing hypoglycemia and body weight. These findings support insulin therapy de-escalation as a safe, effective strategy for poorly controlled T2DM patients taking multiple daily insulin injections.