

PLASMA 1,5-ANHYDROGLUCITOL (GLYCOMARK) AS A MARKER OF
POSTPRANDIAL GLUCOSE EXCURSIONS IN PRAMLINTIDE- AND
PLACEBO-TREATED SUBJECTS WITH TYPE 1 DIABETES

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Postprandial hyperglycemia contributes significantly to overall glycemic control (A1C) and is an independent risk factor for long-term morbidity and mortality. Pramlintide, an amylin analog, as an adjunct to mealtime insulin, lowers postprandial glucose (PPG) more effectively than insulin alone. Plasma 1,5-anhydroglucitol (1,5-AG; GlycoMark), which declines with higher PPG, can be used as a PPG marker in patients with A1C \leq 8%. We assessed 1,5-AG as a marker of PPG control in pramlintide-treated subjects with type 1 diabetes (T1DM).

A post-hoc analysis of a randomized, double-blind, placebo-controlled study was performed in a subset of subjects with T1DM on insulin with a baseline A1C \leq 8% (N=37,

age 40 ± 12 y; A1C $7.5 \pm 0.3\%$; weight 85.9 ± 20.8 kg; mean \pm SD). Subjects were treated with pramlintide (30/60 μ g; n=18) or placebo (n=19) with major meals, with both groups targeting similar glycemic goals. A repeated measures analysis across all visits was performed comparing pramlintide and placebo groups.

At Wk-29, pramlintide improved PPG excursions (-43.9 ± 10.9 vs $+6.5 \pm 7.6$ mg/dL, $P < 0.001$; mean \pm SE), reduced body weight (-2.0 ± 1.2 vs $+1.3 \pm 0.7$ kg, $P < 0.01$), and resulted in similar A1C reductions (-0.18 ± 0.31 vs $-0.22 \pm 0.21\%$) compared with placebo. Consistent with the improvement in PPG, fasting plasma 1,5-AG levels increased significantly from baseline to Wk-29 relative to placebo ($+0.96 \pm 0.91$ vs -0.65 ± 0.41 μ g/mL, $P < 0.05$; $+30 \pm 16\%$ vs $-9 \pm 8\%$, $P < 0.01$). The most common adverse event associated with pramlintide use was mild-to-moderate nausea.

In moderately well-controlled subjects with T1DM, the change in 1,5-AG levels was consistent with the improvement in PPG control in pramlintide-treated subjects. 1,5-AG, as a complement to the A1C, may be a useful PPG control marker.