

## Coverage of Prandial Insulin Requirements by Means of an Ultra-Rapid-Acting Inhaled Insulin

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### Abstract

Barriers to the use of prandial insulin regimens include inadequate synchronization of insulin action to postprandial plasma glucose excursions as well as a significant risk of hypoglycemia and weight gain. Technosphere<sup>®</sup> insulin (TI) is an inhaled ultra-rapid-acting human insulin that is quickly absorbed in the alveoli. With a time to maximum plasma drug concentration of approximately 14 min and a time to maximum effect of 35 to 40 min, TI more closely matches the postprandial insulin concentrations seen in nondiabetic individuals. Studies have shown that long-term administration of prandial TI in combination with long-acting basal insulin results in reductions in hemoglobin A1c comparable to conventional subcutaneously injected prandial insulins but with improved control of early postprandial BG. Furthermore, TI has been associated with less weight gain and a lower incidence of hypoglycemia, which may enhance patient satisfaction and acceptability of insulin therapy. This review discusses the clinical properties of TI and proposes strategies for optimal use.

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**Abbreviations:** (A1C) hemoglobin A1c, (AUC) area under the curve, (BG) blood glucose, (CBGM) continuous blood glucose measurement, (CI) confidence interval, (CSII) continuous subcutaneous insulin infusion, (FEV<sub>1</sub>) forced expiratory volume in 1 s, (OR) odds ratio, (PD) pharmacodynamic, (PK) pharmacokinetic, (PPG) postprandial glucose, (RAA) rapid-acting insulin analog, (TI) Technosphere insulin

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