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**A REVIEW ON INHALED INSULIN PLUS DEGLUDEC: REDEFINING GLYCEMIC CONTROL IN TYPE 1 DIABETES (INHALE-3 STUDY INSIGHTS)****Bhavani Shree M. Pharm D (PB) V Year.**Under the guidance of **Dr. M. Dheenadhayalan****School Of Pharmaceutical Sciences, VISTAS, Tamil Nadu, India- 600117**

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**ABSTRACT:**

Managing post prandial glucose rises in type 1 diabetes remains a major challenge. Subcutaneous rapid-acting insulins often have delayed onset, contributing to postprandial hyperglycemia. Inhaled technosphere insulin (TI) has an ultra-rapid absorption profile, while insulin degludec provides long-acting and stable basal coverage. The INHALE-3 study evaluated the combination of these two insulins compared with standard regimens. To evaluate the clinical efficacy, safety, and patient acceptability of inhaled TI with basal insulin degludec in adults with T1D. In this multicenter RCT, 123 adults with type 1 diabetes were assigned to either TI plus degludec or their standard regimen. After the 17-week randomized phase, participants continued for an additional 13 weeks in an extension study approximating real-world practice. Outcomes included changes in HbA1c, continuous glucose monitoring metrics, incidence of hypoglycemia, lung function (FEV<sub>1</sub>), insulin dose requirements, and patient-reported treatment experience. At 30 weeks, mean HbA1c decreased from 7.6% to 7.4%. The proportion achieving HbA1c <7% rose from 21% at 17 weeks to 42% at 30 weeks. Pulmonary function remained stable, and no severe hypoglycemia or DKA occurred. Participants required higher inhaled insulin doses than prior injected bolus doses but reported improved treatment satisfaction and preference for the inhaled regimen. Inhaled technosphere insulin plus basal degludec provided durable glycemic control, improved HbA1c target attainment, stable safety, and greater patient satisfaction. This combination represents a practical, patient-friendly alternative to conventional injection-only regimens in type 1 diabetes management.

**Keywords:** Type 1 diabetes, inhaled insulin, technosphere insulin, insulin degludec, postprandial hyperglycemia, INHALE-3.