THERAPY CLASS CONVERSION IN PATIENTS WITH TYPE 2 DIABETES: ECONOMIC EVALUATION OF INSULIN DETEMIR AND NPH

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OBJECTIVES: Evidence-based measures are necessary in medical decision-making when comparing modern therapy options with long-established treatments. As such, data from naturalistic settings provide important insight to use of such treatments in actual clinical practice. This study aimed to project real-life economic and clinical implications of converting type 2 diabetes patients on NPH basal-oral therapy to insulin detemir.

METHODS: Pre-transfer, baseline and end-of-study data for 251 subjects converting from NPH ± orals to detemir ± orals were analyzed. Patients were an enrolled subgroup of a multi-national, prospective observational trial (51% male; mean age 61.5 years; diabetes duration 9 years; HbA1c 7.8%; BMI 30.9 kg/m2). Total treatment costs (annual drug plus complications), life years gained (LYG), quality-adjusted life expectancy (QALE), and cumulative complication incidences were assessed using a validated model of diabetes-related complications. Fifteen interconnected Markov sub-models employed second order Monte Carlo simulation to estimate long-term outcomes (10 year horizon; US Medicare perspective), discounted at 3% per annum. Sensitivity analyses were performed.

RESULTS: At 12 weeks post-transfer, mean absolute HbA1c was reduced 0.58%, with improved fasting blood glucose (~28 mg/dL) and weight reduction (0.87 kg). Observation period daily dose did not differ considerably to pre-transfer NPH (27.8 U vs. 25.7 U). Use of orals remained similar upon conversion. A reduced rate of all hypoglycaemia (pre- vs. post-transfer) was observed (~663 events/100 patient years), as were major and nocturnal episodes (39 and 429 events/100 patient years, respectively). Clinical benefits led to projected increases in LYG (0.07 years) and QALE (0.30 years), with associated total management costs reduced $2416 per patient, primarily from reductions in major hypoglycaemia and complication risks (notably ocular and cardiovascular). CONCLUSION: Improved glycemic control and reduced hypoglycaemia were observed in patients with type 2 diabetes transferring from NPH-based therapy to detemir, generating projected improvements in quality-adjusted life expectancy and total costs.

ECONOMIC EVALUATION OF INITIATING INSULIN DETEMIR AMONG TYPE 2 DIABETES PATIENTS RECEIVING ORAL MEDICATION

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OBJECTIVES: Many patients with type 2 diabetes are not achieving recommended HbA1c targets. Barriers preventing the initiation of more efficacious therapies include economic restrictions. The present analysis aimed to evaluate potential clinical and economic outcomes of initiating insulin detemir among type 2 diabetes patients previously on oral medication alone.

METHODS: Data were analyzed from 1321 patients who participated in a 12-week prospective observational trial (50.6% male; mean age 62.2 years; diabetes duration 6.5 years; HbA1c 8.49%; BMI 29.5 kg/m2). A published and validated simulation model of diabetes projected total treatment costs (annual drug plus complications), life years gained (LYG), quality-adjusted life expectancy (QALE), and complication incidences for patients commencing detemir versus those modelled to remain insulin naïve (10 year horizon). The model structure combines 15 interdependent Markov sub-models, simulating the progression of diabetes-related complications and utilizing second order Monte Carlo simulation to account statistical uncertainty at the patient and parameter levels. Outcomes were discounted at 3% per annum (US Medicare perspective). Sensitivity analyses were performed.

RESULTS: Initiation of detemir generated a 1.29% mean reduction in HbA1c over 3 months, with improved fasting blood glucose (FBG; total (SD): −58 mg/dL (−8.2 mg/dL)), and no significant increase in the occurrence of hypoglycaemia. At follow-up, 16% of patients discontinued or reduced oral medications. Pharmacoeconomic modelling demonstrated detemir treatment to improve LYG (0.136 years) and QALE (0.173 years). Reduced major complication incidences were also estimated, including vascular, ocular, and renal events. An incremental cost-effectiveness ratio (ICER) of $657 per QALY gained was generated. An acceptability curve (williness-to-pay of $50,000/QALY) revealed detemir to have a 95.5% chance of being cost-effective. CONCLUSION: Considerable short-term clinical benefits were observed among insulin-naïve type 2 patients initiating detemir. Long-term treatment with detemir was predicted to increase quality-adjusted outcomes and reduce diabetic complications in a cost-effective manner.

EVALUATING THE LONG-TERM HEALTH OUTCOMES AND ECONOMICS OF INITIATING BIPHASIC ANALOG INSULIN COMPARED TO OPTIMIZED ORAL THERAPY ALONE

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OBJECTIVES: The US NHANES study reveals that most type 2 diabetes patients are not achieving endorsed HbA1c goals. During disease progression, clinicians treating insulin-naïve subjects may optimize continued oral therapy, or prescribe exogenous insulin to induce tighter glycaemic control. The present analysis aimed to estimate long-term clinical and economic out-