COSTS AND NEONATAL OUTCOMES AFTER INSULIN ASPART COMPARED WITH HUMAN INSULIN IN PREGNANT WOMEN WITH TYPE 1 DIABETES

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OBJECTIVES: Poor glycemic control during pregnancy in women with type 1 diabetes is associated with high risk of pre-term delivery, neonatal mortality and morbidity. Improving control might improve outcomes and reduce the cost of managing pre-term infants. This study assessed outcomes and associated with insulin aspart (IAsp) and human insulin (HI) in pregnant women with type 1 diabetes. METHODS: Women with type 1 diabetes were enrolled if ≤10 weeks pregnant or planning to become pregnant, and had HbA1c ≤8% at confirmation of pregnancy. Subjects were randomised to treatment with IAsp or HI in a basal-bolus regimen with NPH insulin, with doses titrated to American Diabetes Association guidelines. The effectiveness endpoint in this analysis was the percentage of women with a live birth at term (≥37 weeks gestation). We considered costs of insulin and of inpatient care for pre-term infants. Length of stay in intensive care was estimated from gestational age. Costs were calculated from the perspective of the UK National Health Service. Non-parametric bootstrapping was used to generate confidence intervals. RESULTS: Of 417 women randomised, 322 became pregnant and effectiveness was evaluable for 302, 151 in each arm. Significantly more women experienced a live birth at term with IAsp (72.8%) than with HI (60.9%), difference 11.9% (95% CI 0.7%, 22.5%). Mean cost per woman was £3347 for HI, and £3359 for IAsp, difference £13 (95% CI £612, £966). Insulin accounted for 9.7% of costs for IAsp and 5.6% for HI. The incremental cost-effectiveness ratio was £106 per additional live birth at term (95% CI dominant, £58076). CONCLUSION: IAsp was associated with a significantly higher proportion of live births at term than HI. The cost of managing pre-term births was large compared to the cost of insulin administered.

THE RELATIVE COST EFFECTIVENESS OF INSULIN GLARGINE VERSUS NPH INSULIN USING UK REAL LIFE DATA IN TYPE 1 DIABETES MELLITUS AND THE COMBINED EFFECT OF HBA1C AND HYPOGLYCAEMIA REDUCTION

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OBJECTIVES: This study sought to evaluate the cost utility of insulin glargine in the UK for people with Type 1 diabetes mellitus (T1DM) using observational data in patients switching from
NPH to insulin glargine and combining the effect of HbA1c and hypoglycaemia reduction. METHODS: A discrete event life time simulation with microvascular complications incorporated via the DCCT (Diabetes Control and Complications Trial) study and cardiovascular events modelled using the Framingham equations was adapted to include the combined effects of HbA1c and hypoglycaemia reduction using published meta-regression results from 11 randomised clinical trials. Direct costs and quality of life (EQ5D) were derived from published sources and the HODaR database respectively; costs and benefits were discounted annually at 3.5%. The model was adapted to the profile of T1DM patients switched from NPH to glargine identified via the THIN database. Analysis was conducted on a total of 383 patients with data for the 12 month period prior to, and post switch; using primary outcome measure of adjusted HbA1c change. As hypoglycaemia was not directly collected from the THIN database a sensitivity analysis was performed taking into account HbA1c benefit only. RESULTS: The median age of patients switched from NPH to glargine was 34 years with mean duration of T1DM of 11.4 years. Baseline HbA1c was 8.71% and patients switching to glargine showed a reduction in HbA1c of 0.195% (p = 0.0045) between switch and 12-months post initiation. In a simulated cohort of 10,000 the discounted incremental cost effectiveness ratio (ICER) was ≤3,665 per quality adjusted life year gained (QALY). In sensitivity analysis using HbA1c benefit only the ICER was ≤9,411. CONCLUSION: Based on real life observational data, switching to glargine is cost-effective when compared to NPH; with a corresponding ICER well within accepted thresholds, even in sensitivity analysis using HbA1c effect only.

PDB30
EVALUATING THE COST-EFFECTIVENESS OF BIPHASIC INSULIN ASPART 30 VERSUS HUMAN PREMIX INSULIN FOR THE TREATMENT OF TYPE 2 DIABETES IN A SPANISH SETTING
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OBJECTIVES: In a multinational, multicenter, observational study (PRESENT), patients treated with human premix insulin (with or without conventional oral medication) were converted to biphasic insulin aspart 30 (BIAsp 30) whilst maintaining their existing oral therapy. A sub-analysis (involving 1219 patients) demonstrated an improvement six months after therapy conversion of 1.66-point in HbA1c and a reduced rate of hypoglycaemic events (1079.8 to 290.2 per 100 patient years). METHODS: The published and validated CORE Diabetes Model was used to make long-term projections of clinical and cost outcomes based on patient characteristics (mean age 56.8 years, duration of diabetes 10.2 years, HbA1c 9.1%, BMI 28.7 kg.m⁻²) and treatment effects from PRESENT. Spanish mortality rates, baseline complications and costs of treating complications were derived from published sources. Transition probabilities were based on data from landmark clinical and epidemiological studies. Total direct costs (complications + treatment costs) were projected over patient lifetimes from a Spanish health care payer’s perspective with future costs and clinical benefits discounted at 3.5% annually. RESULTS: Long-term projections indicated that BIAsp 30 treatment was associated with an improvement in discounted life expectancy of 0.77 years (11.33 ± 0.13 versus 10.57 ± 0.14 years). Taking quality of life into account led to a projected improvement of 1.03 quality-adjusted life years (QALYS) with BIAsp 30 over human premix insulin (7.83 ± 0.11 versus 6.80 ± 0.09 QALYs). Superior glycemic control associated with BIAsp 30 treatment was also projected to lead to fewer diabetes-related complications and a net reduction in total direct medical costs of €339 (€32,107 ± 1030 versus €40,446 ± 1247). CONCLUSION: Higher pharmacy costs associated with BIAsp 30 treatment were offset by savings in the costs associated with diabetes-related complications versus human premix insulin. This resulted in a dominant scenario, where BIAsp 30 was associated with improved clinical outcomes and reduced costs compared to human premix insulin in the Spanish setting.

PDB31
TOTAL COST REDUCTION IN TYPE 2 DIABETES MELLITUS (T2DM) PATIENTS TREATED WITH PIOGLITAZONE (PIO) BASED THERAPIES VERSUS NON-THIAZOLIDINEDIONE (NON-TZD) BASED THERAPIES
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OBJECTIVES: An internal study showed the relative risk of stroke was 0.800 and of MI was 0.621 for PIO based therapies versus non-TZD. Reduced MI and stroke events may drive reduced health care costs. Our objective was to compare health care costs in T2DM patients treated with PIO based versus non-TZD based therapies who had no prior MI or stroke events. METHODS: A retrospective cohort analysis was conducted using US health plan data (I3Innovus) from January 1, 2003 to June 30, 2006. Initial ICD-9 codes for T2DM (250.x0 and 250.x2) defined patient index date. The PIO group included patients treated with PIO combined with any other antidiabetic agents (excluding rosiglitazone). The non-TZD group included patients treated with any antidiabetic treatment, but not TZDs. Inclusion criteria were: age ≥45 years, continuous enrollment for at least 6 months before and 1 month after the index date, no history of stroke or MI in the last six months and documented medical claims after the index date. Stroke and MI were defined by appropriate ICD-9 codes. We fitted a generalized linear model with log link and gamma distribution to the monthly average cost in 1) stroke and 2) MI cohorts, controlling for age, hyper tension, and hypercholesteremia. RESULTS: In the stroke cohort, mean total health care cost per patient per month was $1,839 in the PIO group versus $2,115 in the non-TZD group (p < 0.0001). In the MI cohort, mean total health care cost per patient per month was $1,843 in the PIO group versus $2,191 in the non-TZD group (p < 0.0001). Mean medical cost per patient per month in the stroke and MI cohorts was 20% and 23% less, respectively, in the PIO group compared to the non-TZD group. CONCLUSION: PIO based therapies are associated with significantly lower medical and total health care costs compared to those not treated with TZDs in MI and stroke cohorts.

PDB32
EVALUATING THE LONG-TERM CLINICAL AND ECONOMIC IMPLICATIONS OF CONVERTING TYPE 2 DIABETES PATIENTS TO INSULIN DETEMIR (± ORAL HYPOLYCEMIC AGENTS) FROM INSULIN GLARGINE BASED REGIMENS IN GERMANY; DATA FROM THE PREDICTIVE STUDY
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OBJECTIVES: Data from the PREDICTIVE study indicated that, in type 2 diabetes patients receiving long-acting insulin therapy ± oral hypoglycemic agents (OHAs), therapy conversion from insulin glargine to insulin detemir was associated with