960

Cost-effectiveness of detemir-based basal/bolus therapy versus NPH-based basal/-bolus therapy for Type 1 diabetes in a UK setting. An economic evaluation based on a meta-analysis of four clinical trials

S. Roze[1], A. J. Palmer[2], W. J. Valentine[3], I. C. Smith[4], K. Wittrup-Jensen[5];
[1]Department of Statistics, CORE Center for Outcomes Research, Binningen, Switzerland, [2]Department of Health Economics and Modelling, CORE Center for Outcomes Research, Binningen, Switzerland, [3]Department of Medical Writing, CORE Center for Outcomes Research, Binningen, Switzerland, [4]Regulatory Department, Novo Nordisk Limited, UK, Crawley, United Kingdom, [5]Global Development, Health Economics and Outcomes Research, Novo Nordisk A/S, Bagsværd, Denmark.

Background and aims: A meta-analysis of results from 4 clinical trials in type 1 diabetes patients showed that insulin detemir (IDet)-based basal/bolus treatment of type 1 diabetes led to improved HbA1 c (0.15%-points lower), reduced risk of all hypoglycemic events (by 7%), and decreased body weight (0.77 kg) compared to NPH insulin-based basal/bolus therapy in type 1 patients.
Materials and methods: A published, validated, peer-reviewed Markov simulation model (the CORE Diabetes Model) projected short-term clinical results (changes in HbA1 c, BMI and hypo rates) obtained from a meta-analysis of four clinical trials to long-term incidence of complications (cardiovascular disease, neuropathy, renal and eye disease), improvements in Quality-Adjusted Life Years (QALY), long-term costs, and the cost-effectiveness for detemir combinations vs. NPH combinations used in type 1 diabetes patients. Probabilities of complications and HbA1 c-dependent adjustments were derived from the DCCT, UKPDS, WESDR and other published studies. Costs of treating complications in the UK were retrieved from published sources. Total direct costs (complications+treatment costs) for each treatment arm were projected over patients' lifetimes from a UK National Heath Service perspective. Costs were discounted at 6% p.a., QALYs at 1.5%.
Results: Improved glycemic control, decreased hypogly-cemic events and BMI with IDet-based basal/bolus therapy led to decreased diabetes-related complications, an increase in QALY of 0.12 years, increased total lifetime costs/patient of UK£1,277, and a cost-effectiveness ratio of UK £ 10,747 / QALY gained.
Conclusion: Short term improvements seen with IDet combinations vs. NPH combinations were projected to lead to decreased diabetes complications, improvements in QALYs, and reductions in costs of complications, which partially offset the additional costs of detemir, leading to a cost-effectiveness ratio which fell within the range considered to represent excellent value for money.
Supported by: Novo Nordisk A/S Bagsværd and Novo Nordisk Limited, UK

961

Economic analysis of insulin glargine compared with NPH insulin in the treatment of patients with Type 1 diabetes in Spain

C. Rubio Terrés[1], J. Rodríguez[2], B. Bolinder[3], P. de Pablos[4];
[1]HERO Consulting, Health Economics and Research of Outcomes, Madrid, Spain, [2]Aventis Pharma, Madrid, Spain, [3]Aventis Pharma, Bridgewater, NJ, USA, [4]University of Las Palmas de Gran Canaria, Spain.

Background and aims: All new pharmaceutical products must meet acceptable thresholds of cost-effectiveness set by each country in order to be approved for use in general practice. The aim of this study was to compare the cost-effectiveness of insulin glargine (LANTUS®; GLAR) and NPH insulin (NPH) in patients with Type 1 diabetes in Spain.
Materials and methods: A retrospective cost-utility analysis was carried out using a deterministic diabetes model based on the Spanish National Health System. The model uses a hypothetical patient population whose baseline characteristics are defined using results from the Diabetes Control and Complications Trial (DCCT) and simulates the long-term outcomes of their diabetes over 9 years. Event probabilities, health utilities, resource utilization and direct costs used in the model were obtained from the DCCT, comparative clinical trials and a Spanish Health Cost database. Univariant and multivariant sensitivity analyses of the base case were performed.
Results: The average additional health utilities per patient with GLAR versus NPH, with and without discounts, were 0.754 and 0.799 quality adjusted life years (QALY), respectively. The additional cost per QALY gained with GLAR versus NPH was calculated as € 2340 and € 2755, with and without discounts, respectively (2002 prices). These values are well below the acceptable threshold in Spain of € 30,000 per QALY gained. The sensitivity analyses confirmed the robustness of the base case, except when the impact of the fear of severe hypoglycaemia upon health utilities was not considered. However, even in this scenario, GLAR was more effective than NPH at a cost per QALY of €13,000–90,000.
Conclusion: According to this model, GLAR is more effective than NPH, with a lower incidence of severe hypoglycaemia, improved HbA_{1c} and a reduction in long-term diabetic complications. This analysis also shows that GLAR is a cost-effective alternative to NPH in patients with Type 1 diabetes; more QALYs are gained with reduced costs due to the reduction of long-term complications compared with NPH.
This study was supported by Aventis.

962

The association between obesity (BMI) and health-related utility in subjects with Type 1 and Type 2 diabetes

C. L. Morgan[1], J. R. Peters[2], P. McEwan[3], C. J. Currie[1];
[1]Medicine, University of Wales College of Medicine, Cardiff, [2]Medicine, University Hospital of Wales, Cardiff, [3]Mathematics, Cardiff University,United Kingdom.

Background and aims: Obesity, the primary cause of type 2 diabetes, is reaching epidemic proportions in some countries. Insulin treatment also directly increases obesity. The purpose of this study was to characterise the relationship between obesity and health-related utility in type 1 (T1DM) and type 2 diabetes (T2DM).
Materials and methods: Data were taken from the Health Outcomes Data Repository (HODaR), which includes medical histories, biochemistry, health-related utility, height, weight and demographic data for a large population in the UK. The data used here were derived from 14,775 subjects (1.2% T1DM; 7.1% T2DM) sampled from hospital inpatients and outpatients. Obesity was measured using body mass index (BMI) and utility values were generated using the EQ-5D, a measure widely used to measure benefit in economic analyses.
Results: There was a linear and inverse association between BMI and utility at BMI >21 kg/m² (table). There was a systematic difference in utility between people without diabetes and T2DM of around 0.11 utility units. The gradient was the same in people with diabetes, T1DM and T2DM; however, the intercept changed. The gradient could be estimated using the equation: utility= -.0105xBMI+intercept.
Conclusion: There was an inverse relationship between obesity and health utility in people with type 1 and type 2 diabetes. Although there existed wide variability, there was definite structure within these data, this association being highly robust in extensive analysis. The absolute impact of obesity on quality of life can only be estimated after standardization for confounding factors.

Health-related utility versus BMI

	Non-diabetes		T1DM		T2DM	
BMI	Mean	SD	Mean	SD	Mean	SD
22	0.73	0.29	0.79	0.17	0.60	0.35
24	0.72	0.29	0.78	0.29	0.57	0.32
26	0.69	0.31	0.82	0.22	0.53	0.35
28	0.67	0.32	0.75	0.34	0.58	0.34
30	0.65	0.31	0.58	0.41	0.55	0.30
32	0.60	0.35	0.48	0.30	0.55	0.33
34	0.56	0.38	0.58	0.39	0.47	0.41
36	0.59	0.35	0.33	0.26	0.44	0.30