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ABSTRACTS

ISPOR 15TH ANNUAL EUROPEAN CONGRESS RESEARCH ABSTRACTS

PODIUM SESSION I:

DIABETES OUTCOMES RESEARCH

DB1

ASSESSING THE RELATIONSHIP BETWEEN THE EFFECT OF GLYCEMIC CONTROL AND AVOIDED SYMPTOMATIC HYPOGLYCEMIA ON QUALITY OF LIFE IN THE MANAGEMENT OF TYPE 2 DIABETES

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OBJECTIVES: Achieving optimal blood glucose control while avoiding hypoglycaemia forms the foundation of diabetes management. The objective of this study was to undertake an equilibrium analysis to identify the level of HbA1c reduction required to achieve the same quality of life benefit as achieved by avoiding events of non-severe symptomatic hypoglycemia (NSHE). **METHODS:** This study used the IMS Core Diabetes Model (CDM), a validated and established diabetes model, to explore the relationship between the avoidance of NSHE, HbA1c reduction and quality-adjusted life expectancy (QALE). Scenario analysis (SA) comparing rates of NSHE ranging from 25 to 250 events per 100 patient years with no HbA1c effect (i) and comparing increasing difference in HbA1c change with no effect on NSHE (ii) were conducted. The model was run over a lifetime and benefits were discounted at 3.0%. Sensitivity analysis was conducted on the disutility of symptomatic hypoglycemia. **RESULTS:** The QALE gain associated with avoiding 1 NSHE per patient per year was 0.06; incremental QALE per event avoided changed in sensitivity analyses to 0.035, 0.124 and 0.212 quality adjusted life years for assumed disutilities of -0.0029, -0.0107 and -0.0184, respectively. The impact of HbA1c reduction on QALE gain ranged from 0.0112 to 0.1171 for changes between 0.1% and 1.0% points, respectively. The HbA1c reduction required to achieve equivalent QALE benefit as the avoidance of one NSHE per patient per year was 0.54% in the base case analysis (NSHE disutility of -0.0052) and 0.33%, 1.08% and 1.84% in SA for NSHE disutilities of 0.0029, -0.0107 and -0.0184, respectively. **CONCLUSIONS:** HbA1c change and reduced NSHE are key drivers of cost effectiveness. This analysis is noteworthy as it demonstrates the significant contribution to QALE associated with the avoidance of NSHE. The avoidance of NSHE is at least as powerful a driver of QALE as lowering HbA1c.

DB2

ECONOMIC CONSEQUENCES OF SEVERE HYPOGLYCAEMIA – PRELIMINARY FINDINGS FROM FIVE CENTRAL EUROPEAN COUNTRIES

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OBJECTIVES: Severe hypoglycaemic events (SHEs) are most commonly defined as symptomatic, severe hypoglycaemia in which a patient needs either assistance from another individual or professional medical care. SHEs impose a substantial economic burden on health care systems. The aim of our analysis is to assess the total number and corresponding costs (both direct and indirect) of SHEs in either type 1 or 2 diabetes in five Central European countries in a unified approach in order to compare results and main drivers of differences. **METHODS:** SHEs were further divided into low (only help provided on-site by a non-medical professional), medium (emergency care or consultation by a physician or other medical professional) and high (admission to hospital) resource consumption episodes. Data on unit costs and resource use for low, medium and high resource consumption SHEs were collected for each country based on published literature and expert opinions. The risks of SHEs were determined separately for individual groups of anti-diabetic drugs used in monotherapy or in a combined treatment. Subsequently the economic model was developed to combine epidemiological data and drug use patterns for Czech Republic, Croatia, Hungary, Poland and Slovenia, to estimate the number of SHEs and resulting indirect and direct costs from payer's perspective in each of the participating countries. **RESULTS:** Low resource consumption SHEs were rarely associated with resources used that were covered by public payers. Medium resource consumption SHEs contributed most to total direct costs. Hospital admissions directly associated with SHEs although not common, present a considerable expense to the health care system. The total number and corresponding costs of SHEs were different for participating countries as a consequence of diverse unit medical costs and sulphonylureas use. **CONCLUSIONS:** Our preliminary estimates for Central European countries suggested substantial economic burden associated with SHE and large differences between the countries.

DB3

HOW A FEAR OF HYPOGLYCEMIA INFLUENCES HEALTH-RELATED QUALITY OF LIFE IN TYPE 2 DIABETES MELLITUS PATIENTS IN SPAIN? HIPOQOL-II STUDY

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OBJECTIVES: Fear of hypoglycemia influences Health-Related Quality of Life (HRQoL) in type 2 diabetes mellitus (T2DM) patients implying changes in clinical management. The aim of the study is to explore the way that fear for hypoglycemia modifies HRQoL in T2DM patients in Spain. **METHODS:** Observational, cross-sectional, multicentre design. T2DM patients diagnosed from at least 1 year were recruited consecutively. Use of research tools: 1) Audit of Diabetes-Dependent Quality of Life/ADDQoL questionnaire [-9 to +9, more negative scores indicate greater negative impact of diabetes on QoL]; 2) Worry Subscale of the Hypoglycaemic Fear Survey-II (HFS-II) [0-72, higher scores indicate increased fear]; 3) Visual Analogue Scales (VAS) measuring fear and impact of hypoglycemia [0-10, higher scores indicate greater fear and impact of hypoglycemia]. **RESULTS:** A total of 3,812 patients (661 health care centers; 17 regions) participated in the study [men (53.57%); mean(SD) age 63.70(11.37) years; retired (43.02%); mean(SD) time from T2DM diagnosis 9.67(6.91) years. 44.88% referred at least one episode of hypoglycemia in the previous six months, more frequent (40.50%) and severe (43.37%) in the morning. Mean (SD) HFS-II subscale score was higher in patients who reported hypoglycemic episodes during the previous six months [31.32(15.71)] compared to those who did not [18.85(16.03)](p<0.0001). Mean (SD) ADDQoL scores showed a greater significant negative impact of T2DM on QoL in patients with hypoglycemia [-2.48(1.61)] than in those with no previous episodes [-1.64(1.36)](p<0.0001). They also scored significantly higher the influence of fear for hypoglycemia on everyday life [VAS mean (SD) 5.19(2.68)], on daily activities [VAS mean (SD) 5.98(2.59)] and in relation to other health problems [VAS mean (SD) 5.50(2.72)] compared to patients with no previous hypoglycemia episodes [VAS mean (SD) 1.73(2.30); 2.89(2.82) and 2.73(2.72), respectively](p<0.0001). **CONCLUSIONS:** Fear of hypoglycemia negatively influences T2DM patients HRQoL particularly when episodes of hypoglycemia had taken place during the previous six months.

DB4

PATIENT-REPORTED HYPOGLYCAEMIA IN REAL-WORLD SETTINGS IN SEVEN EUROPEAN COUNTRIES

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OBJECTIVES: Despite the negative impact on patients' quality of life, limited data across countries are available on hypoglycaemia in insulin-treated diabetes patients in 'real-world' settings. This study investigated rates of self-reported non-severe hypoglycaemic events (NSHE) and reporting of hypoglycaemia to general practitioners (GPs) or specialists. **METHODS:** Diabetes patients (type 1 [T1] and type 2 [insulin regimen: basal only, T2BOT; basal-bolus, T2BB; and other, T2O]) in Austria, Denmark, Finland, Norway, The Netherlands, Sweden and Switzerland were recruited, mainly via online panels, to complete four questionnaires at seven-day intervals. Data on patient demographics, hypoglycaemia-related behaviour and NSHE in the preceding seven days were collected. NSHE was defined as an event with symptoms of hypoglycaemia, with or without blood glucose measurement (BGM), or low BGM without symptoms, which the patient could manage without assistance. **RESULTS:** A total of 11,790 patient-week records were collected from 3958 patients (57% completed all four questionnaires). Mean insulin treatment duration was 19, 5, 9 and 7 years for T1, T2BOT, T2BB and T2O, respectively. Mean HbA_{1c} was 7.7% (T1) and 7.6% (T2). Mean self-reported NSHE/patient-week was 1.7 in T1 (Austria: 1.6, Denmark: 1.9, Finland: 1.3, Norway: 1.8, The Netherlands: 2.0, Sweden: 2.0, Switzerland: 1.4), 0.4 in T2BOT (Austria: 0.3, Denmark: 0.4, Finland: 0.2, Norway: 0.4, The Netherlands: 0.5, Sweden: 0.4, Switzerland: 0.4) and 0.7 in T2BB (Austria: 0.5, Denmark: 0.7, Finland: 0.5, Norway: 1.0, The Netherlands: 0.7, Sweden: 0.9, Switzerland: 0.6). Night-time NSHE was 22% (T1), 25% (T2BOT) and 17% (T2BB) of NHSEs. Overall 60% of patients stated that they rarely or never reported NSHEs to their GP/specialist. Similarly, 22% (overall) were not routinely asked by their GP/specialist about hypoglycaemia. **CONCLUSIONS:** NSHE are common amongst insulin-treated patients and rates are comparable in all countries investigated. Events are often not reported to patients' GP/specialist. The real burden of hypoglycaemia may therefore be underestimated.