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OBJECTIVES: The aim of this study was to analyse which factors predict the real-world macro-/microvascular event, hospitalisation and death risk in patients with type 2 diabetes mellitus (T2DM). **METHODS:** We used a German claims/clinical data set (AOK Plus) covering the years 2010-12. Factors associated with event risk were analysed by a Kaplan-Meier curve analysis and by multivariable Cox regression models. **RESULTS:** 229,042 T2DM patients (mean age 70.2 years; mean CCI 6.03). A total of 66.3% of the sample had a mean systolic blood pressure of >130mmHg (mean: 135.56mmHg), 48.0% could be considered as obese (BMI>30). The mean HbA1C in the sample was 7.00%; 11.1% of observed patients had a mean HbA1C<6.0%, 75.3% <7.5%, and 4.5% ≥9.0%. The mean observational period per patient from 01/04/2011 until 31/12/2012 or until first observed all-cause event was 581.9 days (SD: 148.4). 39,589 patients of the study sample (17.3%) were affected by at least one T2DM-related event in this period (event frequency per 1,000 patient years: 82.7 macrovascular events; 10.8 microvascular events; 28.4 hospitalisations with T2DM as main diagnosis; 40.7 deaths). Among factors that increased the composite event risk were patients' age, male gender, the adapted Charlson-Comorbidity-Index, the adapted Diabetes-Complication-Severity Index, previous events, and number of prescribed chronic medications. For systolic blood pressure/HbA1C, a double-J/U-curve pattern was detected: HbA1C of 6-6.5% and systolic blood pressure of 130-140mmHg were associated with the lowest event risk, values below/above that range were associated with higher risk. However, this pattern was mainly driven by the death risk and was much less clearly observed for the macrovascular/microvascular/hospitalization risk and for young/less comorbid patients. **CONCLUSIONS:** Both blood pressure and HbA1C seem to be very important treatment targets, especially in comorbid old patients. Both over- and under-treatment pose a threat to patients with type 2 diabetes mellitus.

PDB22

RISK OF FRACTURE IN TYPE 2 DIABETES MELLITUS PATIENTS: META-ANALYSIS OF OBSERVATIONAL STUDIES

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OBJECTIVES: Patients with type 2 diabetes mellitus (T2DM) display a unique skeletal phenotype with either normal or more frequently increased, bone mineral density and impaired structural and geometric properties. Alterations in bone material properties seem to be the predominant defect leading to increased bone fragility. A systematic review and meta-analysis of observational studies is conducted to assess the association between T2DM and fracture risk. **METHODS:** A systematic literature search was performed in Medline and EMBASE databases. "Abstracts" from annual scientific meeting of various diabetes and bone and mineral societies were also searched to identify relevant studies. Studies reporting fracture risk in subjects with T2DM in comparison with subjects without diabetes were included. Heterogeneity was calculated by performing I2 statistics. Summary relative risk (RR) estimates and 95% confidence intervals (CIs) were calculated using random-effects model. **RESULTS:** Twelve studies met the inclusion criteria reporting 25,848 fracture events among 6,12,748 subjects without diabetes (4.2 %) and 8570 fracture events among 2,12,011 subjects with T2DM (4.0 %). The pooled relative risk (RR) of any fracture in subjects with T2DM was 0.91 (95% CI 0.75 – 1.11, p=0.375). The pooled RR for any fractures in women with T2DM was 0.907 (95% CI 0.735- 1.118, 10 studies) compared to subjects without diabetes. The pooled RR for any fractures in men with T2DM was 0.868 (95% CI 0.738 to 1.022) compared to subjects without diabetes. Sensitivity analysis demonstrated stability of result after removing outliers. No publication bias was observed on visual analysis of funnel plot. **CONCLUSIONS:** Our meta-analysis suggests that patients of T2DM are not at increased risk of incidence of fractures as compared to non diabetic subjects.

PDB23

HETEROGENEITY IN THE DEFINITION OF DRUG INDUCED HYPOGLYCEMIA IN CLINICAL TRIALS: A REVIEW

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OBJECTIVES: To examine the heterogeneity in the definitions of hypoglycaemia across Randomized Clinical Trials (RCTs) conducted with oral antidiabetic agents or insulin. **METHODS:** RCTs included in the Canadian Agency for Drugs and Technologies in Health (CADTH) reports for the second-line and third-line therapy for the patients with Type 2 Diabetes were examined. Definitions for overall, major, minor, severe, and nocturnal hypoglycaemia were extracted from 76 RCTs. The extracted definitions were compared to the definitions of the American Diabetes Association (ADA) and European Medicines Agency (EMA). **RESULTS:** According to the ADA and the EMA, hypoglycaemia is defined as an event with a blood glucose (BG) ≤ 3.9mmol/L. Only 4 out of 76 studies adhered to the ADA/EMDA definition of hypoglycaemia. Generally, hypoglycaemia was defined as a status with BG ranging from <4 mmol/L to ≤ 2.8mmol/L. Only 17 out of 33 RCTs that defined severe hypoglycaemia adhered to the ADA/ EMDA definition. Severe hypoglycaemia was defined as a symptomatic condition that required the assistance of a third person for resuscitative actions, with or without BG values spanning from <3.3 mmol/L to <2.0 mmol/L. Major hypoglycaemia was defined as patients being unable to treat themselves, with or without a BG value ranging from <3.1 mmol/L to ≤2.8 mmol/L. Nocturnal hypoglycaemia was vaguely defined when reported, as episodes occurring after evening injection and before breakfast, or between bedtime and morning, or any 6 hours or longer interval between 11pm and 8am. **CONCLUSIONS:** Compared to the ADA and EMA proposed definitions of hypoglycaemia (BG≤3.9mmol/L), the studies included in our review had a substantial heterogeneity in their definitions of hypoglycaemia not only in terms of the BG values being used, but also with the inclusion of the symptoms. The heterogeneity in defining hypoglycaemia makes it difficult to compare the safety of interventions for their drug-induced hypoglycaemia.

DIABETES/ENDOCRINE DISORDERS – Cost Studies

PDB24

BUDGET IMPACT ANALYSIS OF LONG-ACTING INSULIN ANALOGUES IN THE PERSPECTIVE OF BRAZILIAN PUBLIC HEALTH SYSTEM

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OBJECTIVES: To estimate the incremental budget impact of the reimbursement of long-acting insulin analogues (LAIA) for type 1 diabetes patients (T1DM) in Brazil. **METHODS:** A budget impact analysis (BIA) of LAIA in the Brazilian public health system compared to NPH human insulin was performed. The analysis' time horizon was 5 years. The target population used the methodology of epidemiological demand, considering estimates of the International Diabetes Federation: 11.6 million diabetics of 20-79 years old x 5% T1DM plus 31100 children and 10845 adolescents. It considered the incidence of 10.4/100,000 persons per year and mortality 23.15/1000 adults per year. The overall mean insulin dose was obtained from trials. For the human insulin, we considered the values of last purchase of the Ministry of Health. For both insulins, we got the average maximum sale price for government from CMED list. Then the bargaining power was calculated dividing the NPH's maximum sale price by the Ministry's purchase price, and we applied 50% of the bargaining power to the LAIA's price. Market share was 50%, 60%, 70%, 80% and 80%. **RESULTS:** The incremental budget impact of LAIA would be $93 million in the 1st year, considering 50% of target population, and reaching approximately $432 million for 80% of patients. In 5 years, the calculated budget impact was $617 million. The sensitivity analysis indicates the prevalence and analogues prices as villains. **CONCLUSIONS:** LAIA are available in Brazil since 2002, although to this day the public health system does not make it available to citizens. We can suggest that the reason for non-coverage is the considerable budget impact, nevertheless our analysis, more complex and with rational methodology, have shown less impact than the analysis used in the Ministry's decision, which BIA was U$ 816 million for the coverage of LAIA.

PDB25

THE NHS EXPENDITURE MANAGING SEVERE HYPOGLYCEMIA EPISODES IN TYPE 2 DIABETIC PATIENTS IN PORTUGAL

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OBJECTIVES: Hypoglycemia is an acute complication of diabetes that increases the morbidity, mortality and disease costs. We aimed to estimate the annual NHS expenditure managing severe hypoglycemia episodes in type 2 diabetic patients in Portugal. **METHODS:** HIPOS-ER (Hypoglycemia in Portugal Observational Study – Emergency Room) study was an observational, cross-sectional, multicenter, hospital-based study conducted in seven centers of Portugal mainland within a period of 12 months (January 2013 - January 2014). Patient level data were used to quantify healthcare resource consumption related to emergency transportation, emergency department care and hospitalization. Unit costs for 2014 were extracted from official sources and reported in euros. **RESULTS:** A total of 425,706 admissions at the emergency room were registered in the participating hospitals within the shifts covered by HIPOS-ER study. Of these, 0.074% had diabetes type 2 and were admitted due to an episode of hypoglycemia meaning that theoretically 2.317 emergencies occur yearly in Portugal due to severe hypoglycemia in Type 2 diabetic patients (out of an universe of 3.131.126 annual general emergencies in Portugal). Considering the HIPOS-ER estimated mean cost for managing this type of hypoglycemia (i.e. €1,479), we expect that around 3.4 millions of euros per year are spent in treating this diabetes related complication at emergency rooms of NHS Portuguese hospitals. **CONCLUSIONS:** Our estimation highlights the potential overall economic burden of severe hypoglycemias in Portugal, meaning that this diabetes-related event must be taken in consideration by different healthcare stakeholders not only from strict clinical point of view, but also from and economic one. We conclude that severe hypoglycemic events represent a substantial cost for society and in particular for the hospitals of the National Health Service.

PDB26

COSTS FOR DIABETIC PATIENTS RECEIVING DIPEPTIDYL PEPTIDASE-4 (DPP-4) INHIBITORS IN US MEDICARE AND COMMERCIAL INSURANCE PLANS

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OBJECTIVES: Background: The DPP4 inhibitors are among the newer, yet more established, classes of diabetes medications. In the US these include: sitagliptin, saxagliptin, linagliptin, and alogliptin. OBJECTIVE: The objective was to compare direct medical costs for patients taking DPP4-inhibitors. **METHODS:** Claims were extracted for Humana Medicare or Commercial plan members with >=1 prescription filled for a DPP4-inhibitor between July 1, 2011 and March 31, 2013. The first prescription claim for a DPP4 established the index date and index medication, and 12-month pre- and post-index data were analyzed. The Diabetes Complications Severity Index (DCSI) assessed diabetes-related co-morbidities. Post-index costs (in 2013 US dollars) were compared adjusting for pre-index costs, DCSI, pre-index insulin, age and gender using GLMs and p <0.05. **RESULTS:** Few patients were prescribed alogliptin. The final samples included 22,860 patients with Medicare coverage (17,292 sitagliptin;