BACKGROUND: Chronic kidney disease (CKD) is highly prevalent in type 2 diabetes mellitus (T2DM) population. However, information regarding recent temporal trends and prevalence within key demographic subgroups are lacking. OBJECTIVES: To estimate the prevalence of CKD stages in T2DM over time and within demographic subgroups. METHODS: Individuals ≥18 years old with T2DM were identified from the US National Health and Nutrition Examination Survey (NHANES) 2007-2012 via self-reported diabetes or antidiabetic medication use. Individuals with type 1 diabetes, pregnancy, and with missing serum creatinine lab value, age, gender, or race were excluded. CKD was staged based on KDIGO 2012 guidelines as: 1-estimated glomerular filtration rate (eGFR in ml/min/1.73m² via CKD-Epi equation) ≥90 with albuminuria, ≥60-89 with albuminuria, 3a=45-59; G3b=30-44, 4-15-29, 5=15.

Projected national estimates are reported using appropriate NHANES weights to account for response bias and oversampling. RESULTS: Of the 2,006 T2DM individuals, the overall age-sex adjusted CKD prevalence from 2007-2012 was 38.2% (40.2% in 2007-2008, 36.9% in 2009-2010, and 37.6% in 2011-2012. Most CKD patients were at early stages (77.5% for Stages 1 to 3a), with only 22.5% with moderate to severe CKD (Stages 3b to 5). Over the 3 survey cycles, the prevalence of Stage 3a increased while Stage 1 and 2 decreased. The prevalence of CKD in patients with T2DM was 25.7% in <65 years old, 58.7% in ≥65 years old, 40.0% in males, 38.7% in females, 43.5% in Caucasians, 33.4% in African Americans, 28.1% in Hispanics, and 26.3% in Asians. CONCLUSIONS: Prevalence of CKD in patients with T2DM is high and increases with age. Our findings, in this nationally representative population, highlight that CKD, primarily early stages, is prevalent among a large group of T2DM patients, particularly Blacks and Mexican-Americans, for whom interventions may be targeted in order to slow and/or prevent the progression of kidney function decline. Patients not aggressively targeted for CKD screening, such as younger patients, also warrant attention.

PDB31 COMPARISON OF REAL-WORLD HYPOGLYCEMIA RATES AMONG PATIENTS INITIATING TREATMENT WITH SAXAGLIPTIN OR GLIPIZIDE

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OBJECTIVES: The study compared hypoglycemia rates in patients with type 2 diabetes on metformin who augmented treatment with saxagliptin or glipizide 5-20 mg/day.

METHODS: This retrospective analysis utilized US healthcare claims data from the Truven Health MarketScan Research Databases. Data were from adults on metformin monotherapy who added saxagliptin or glipizide 5-20 mg/day between 1 August 2009 and 31 December 2010. Hypoglycemia event rates were compared during the 4 months after initiation of saxagliptin or glipizide. A hypoglycemia event was defined as a diagnosis of hypoglycemia on an outpatient or emergency room claim, a principal diagnosis on a hospital claim, or a glucagon injection in an outpatient setting. Analyses were adjusted for patient demographics and clinical characteristics using inverse probability propensity scores and rate ratios were estimated using Poisson regression. To achieve maximal covariate balance in adjusted analyses, only patients with a propensity score ≥0.02 were retained for analysis.

RESULTS: A total of 9,246 patients (1,567 taking saxagliptin; 7,679 taking glipizide) qualified. During 120 days of follow-up, there were 205 hypoglycemia events among saxagliptin patients compared to 328 in the glipizide cohort (1.74 vs. 4.18 per 100 person-years; p<0.002; rate ratio 0.42 [95% confidence interval 0.24-0.71]).

CONCLUSIONS: Treatment with saxagliptin was associated with a lower risk of hypoglycemia compared with glipizide 5-20 mg/day in a real-world database. These results add confidence to similar findings from clinical trials.

PDB32 ASSOCIATION BETWEEN BONE MINERAL DENSITY AND TYPE 1 DIABETES MELLITUS: A META-ANALYSIS OF OBSERVATIONAL STUDIES

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OBJECTIVES: Diabetes influences bone metabolism, but the relation of type 1 diabetes mellitus (T1DM) with bone mineral density (BMD) remains inconsistent across studies. The objective of this study was to perform a meta-analysis to estimate the difference in BMD between T1DM and non-diabetic populations.

METHODS: Studies were selected by doing comprehensive literature search in PubMed and Embase up to January 2014. Additional searches were also conducted to include research abstracts, cross references and bibliography of individual articles. All studies, including cross-sectional, cohort or case-control design, showing association between T1DM and BMD measured by dual energy X-ray absorptiometry (DXA) were considered eligible for the review. A random effects meta-analysis was performed. Heterogeneity and publication bias were checked. Results are expressed as Pearson’s correlation coefficient (r).

RESULTS: A total of 14 studies (38.6%) reported changes in DXA measurements (38.6%), warning and precautions (36.4%), and black box warnings (20.5%).

CONCLUSIONS: Reductions in HbA1c (-1.0%). The goal of our study was to estimate the longer term effects of saxagliptin on patient outcomes. Despite being the most efficacious blood glucose lowering therapy, the majority of patients on basal insulin do not achieve adequate glycemic control (HbA1c>7.0%), increasing the risk of complications. A patient-adjusted mealtime insulin-dosing algorithm was recently validated in a randomized clinical trial (AUTONOMY) and demonstrated statistically significant and clinically meaningful reductions in HbA1c (-1.0%). The goal of our study was to estimate the longer term economic outcomes of this clinical trial treatment effect in a representative sample of US patients with Type 2 diabetes. METHODS: We utilized a validated Monte Carlo microsimulation model to compare patients initiating the AUTONOMY daily (QOD) titration algorithm upon HbA1c drift to those delaying initiation. Outcomes modeled included mean HbA1c, diabetes-related complications, mortality, and associated costs over 10 years. Treatment effects were modeled from AUTONOMY clinical trial results. The setting for the economic analysis was representative of the care delivered within the general population of patients utilizing insulin within the US (NHANES). Sensitivity analyses included factors such as time horizon, discount rate, and baseline HbA1c. RESULTS: Patients initiating self-adjusted bolus titration upon HbA1c drift had better outcomes over the 10 years: decreases of -1.3% in severe hypoglycemic events, -2.8% in myocardial infarction or cardiac events, -1.8% in stroke, -0.9% in blindness, -12.4% in lower extremity amputations, and -1.7% in mortality. These patients were estimated to have a small increase in pharmacy costs.