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OBJECTIVES: To synthesis current evidence of the impact of Glucagon-like peptide-1 receptor agonists (GLP-1 RA) on heart rate, blood pressure and hypertension. **METHODS:** Meta-analysis of available RCTs comparing GLP-1 RA with placebo and other active anti-diabetic drugs among patients with type 2 diabetes. Weighted mean differences between trial arms for changes in heart rate and blood pressure, and odds ratio of hypertension, after a minimum of 8-week follow-up. **RESULTS:** 42 trials with 12 treatments were included. Overall, liraglutide-1.2mg-once-daily and liraglutide-1.8mg-once-daily increased the heart rate by 2.47 (95% CI: 0.81 to 4.09) and 2.95(95% CI: 1.44 to 4.46) beats/min (bpm) versus placebo, and with higher heart rate versus active control (range: 1.90 to 3.19). This effect was more evident for liraglutide and exenatide long-acting release than exenatide-twice-daily. GLP-1 RA decreased systolic blood pressure with a range from -0.81(95% CI: -3.17, 1.51) to -4.42(95% CI: -2.87,-5.99) when compared to placebo, insulin and sulphanylureas. This effect was more evident for liraglutide than other kinds of GLP-1 RA. Statistical significance was only detected in reduction of diastolic blood pressure for exenatide-10μg-twice-daily versus placebo (-1.07 mmHg, 95% CI: -1.89,-0.26) and insulin (-1.35 mmHg, 95% CI: -1.99,-0.65). In comparison to placebo and active control, no statistically significant association between incident hypertension and GLP-1 RA was detected. **CONCLUSIONS:** Our network meta-analysis from Bayesian analysis, for the first time, provided a useful and complete picture of the associations between GLP-1RA, conventional anti-diabetic drugs and placebo on heart rate, blood pressure and hypertension. GLP-1 RA was associated with a slight increase in heart rate, modest reduction on blood pressure, yet no significant association with hypertension. However, further evidence is necessary for more conclusive inferences on mechanisms underlying the rise in heart rate and the reduction in blood pressure.

DB2

EFFICACY AND SAFETY OF HUMAN INSULIN VERSUS ANIMAL INSULIN AMONG PATIENTS WITH DIABETES IN CHINA: A META-ANALYSIS

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OBJECTIVES: There have been controversies on the efficacy and safety of human insulin compared to animal insulin. The aim of this study was to compare the efficacy and safety between human and animal insulin among Chinese patients. **METHODS:** A systematic literature search with key terms for identifying studies on human and animal insulin among Chinese population was performed using MEDLINE, China National Knowledge Infrastructure, Chinese Scientific Journals Database, Wan Fang database and Chinese Biological Medical Database. For each clinical outcome, meta-analysis was conducted when enough number of studies (≥3) meet inclusion criteria. Mean difference (MD) and risk ratio (RR) were pooled for continuous and count measurements, respectively. **RESULTS:** A total of 597 publications were retrieved and 21 studies were identified for inclusion, including 7 randomized controlled trials (RCT), 5 non-randomized controlled trials (NRCT), and 9 studies where patients switched from animal insulin to human insulin (SW). Compared with animal insulin, human insulin was associated with significantly less daily dose, with MD(U/d) [CI] of -9.67 [-12.35,-6.99] for RCT, -9.19 [-10.01,-8.36] for NRCT, and -10.06 [-14.79,-5.33] for SW, as well as lower incidence of hypoglycemia, with RR of 0.29 [0.15,0.56] for RCT, 0.66 [0.51,0.86] for NRCT and 0.27 [0.11,0.67] for SW. In the analyses of RCTs, human insulin also had lower of local swelling and induration (RR: 0.09 [0.02, 0.39]) while the incidence difference of allergy was not statistically significant (RR: 0.19 [0.03, 1.09]). In addition, patients had significantly larger decrease of HbA1c when switching from animal insulin to human insulin with MD of -2.42% [-3.83, -1]. **CONCLUSIONS:** Results from this meta-analysis suggest that human insulin may show more benefit on efficacy and safety among Chinese patients with diabetes compared to animal insulin. More detailed prospective studies are warranted to further explore this comparison.

DB3

TREATMENT PROFILE AND INSULIN DOSE AS A FACTOR IMPACTING GLYCAEMIA CONTROL AMONG PREMIX INSULIN USERS WITH T2DM IN CHINA

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OBJECTIVES: In China, approximately 70% of insulin users utilize premix formulations. This study was to evaluate premix use in China and the associated glycaemic outcomes in patients with Type 2 Diabetes Mellitus (T2DM). **METHODS:** Using the Adelphi™ T2DM Disease Specific Programme, we examined 279 patients aged ≥18years with T2DM receiving premix insulin. To examine the association between insulin dose and glycaemic control, we analyzed 140 patients whose dose was maintained for at least 3month longer than their HbA1c tests, without any insulin secretagogue use, and total daily insulin dose ≥ 0.2 units/kg according to the premix initial dose recommendation of the Chinese Diabetes Prevention and Treatment Guideline. A multivariate logistic regression adjusting for potential confounders was applied to assess the association. **RESULTS:** Among 279 premix users, the mean (±SD) age was 58.3±11.8 years and 46.6% were male. The median (1st - 3rd quartile) time since diabetes diagnosis was 3 (2 - 6) years. Premix BID was used by most patients (76.7%), followed by premix QD (17.2%) and premix TID (6.1%). The median total daily insulin dose was 0.37 (0.18 - 0.53) units/kg. As recorded from the most recent HbA1c result, 36.0% of patients were in glycaemic control (HbA1c <7%). A total of 140 patients were included in the analysis to examine the association between insulin dose and glycaemic control. The logistic regression revealed that for those patients taking total daily insulin of at least 0.2 units/kg, the odds of being in better glycaemic control increased by a factor of 1.31 for each additional 0.1 unit/kg of insulin therapy utilized [95% CI was (1.03, 1.67), p=0.029]. **CONCLUSIONS:** This study indicates that under-dosing of premix insulin may be a factor contributing to sub-optimal glycaemic control among patients with T2DM in China. More detailed prospective studies are warranted to further explore this relationship.

DB4

CLINICAL CHARACTERISTICS AMONG HYPERTENSION PATIENTS WITH DISLIPIDEMIA IN SHANGHAI, CHINA

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OBJECTIVES: To evaluate the clinical characteristics among hypertension patients with dislipidemia in Shanghai, China. **METHODS:** The information of hypertensive patients who had detected their serum LDL-C was extracted from the Electronic Health Record (eHR) system in Minhang district, Shanghai. According to the LDL-C criteria of Chinese guidelines on prevention and treatment of dyslipidemia in adults (2007), LDL-C level was categorized into three subgroups: acceptable, <3.37 mmol/L; borderline, 3.37-4.12 mmol/L; and high ≥ 4.12 mmol/L. Patients with either borderline or high LDL-C level were considered as dislipidemia. Information on demographics, life-style, medical records, as well as cardiovascular events was collected. Hypertension was identified by ICD-10 code in the database. **RESULTS:** A total of 6765 hypertensive patients with available LDL-C measurement were analyzed. Among these patients, 57.4% were females, 29.4% had dislipidemia. Mean age was 68.2 years old for hypertension patients with dislipidemia and 67.0 years old for those without dyslipidemia. The proportion of females in the two groups were 68.6% vs. 52.6%; smoking 13.3% vs, 19.5%; and drinking 16.1% vs. 22.3%; respectively. Moreover, hypertension patients with dislipidemia had slightly higher obesity (17.0% vs. 16.1%), grade 3 hypertension (21.0% vs. 19.1%), fasting blood glucose (36.8% vs. 30.9%) and cardiovascular events rate (9.3% vs. 8.4%). **CONCLUSIONS:** Hypertension patients with dislipidemia had more risk factors for cardiovascular disease than patients without dislipidemia.

DRUG USE STUDIES

DU1

TREATMENTS PRIOR TO AND POST PERCUTANEOUS CORONARY INTERVENTION (PCI) IN CHINA

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OBJECTIVES: Patients undergoing percutaneous coronary intervention (PCI) represent a group of patients with a high-risk of cardiovascular events. Limited information exists in the literature on patient characteristics and drug treatments before and after PCI in China. The primary objective of this research was to assess the use of lipid-lowering and antiplatelet therapy prior to and post PCI. **METHODS:** We conducted a retrospective, observational study on all patients who underwent PCI at a large urban hospital in Shanghai, China from 05/2010 to 06/2011. Patient clinical and demographic characteristics were assessed; drug treatments, including statin and antiplatelet therapy, were compared prior to and post PCI. **RESULTS:** A total of 565 patients (80.5% male) had PCI during the study period and were included in the analysis. Both the mean and median age was 65 years old (range 35 to 90). At baseline, 71.7% had angina, 66.0% had hypertension, 31.0% had diabetes, 20.4% had hyperlipidemic pancreatitis, 14.3% had a history of myocardial infarction, and 13.8% had chronic kidney disease. 55.0% of patients were active smokers or previously smoked and PCI was not the first time for 10.6% of patients. Prior to the current PCI, the majority of patients were on aspirin (95.8%) and clopidogrel (99.8%), very few were on cilostazol (3.2%) and tirofiban (2.0%), and 70.6% of patients were on statins. The majority of patients (79.8%) received one stent with 20.2% of patients receiving two or more stents. Post PCI, the proportion of patients on statins increased significantly to 98.8% ($p < 0.0001$); there was little change in the proportion of patients on the other four drugs. **CONCLUSIONS:** Patients who underwent PCI had significant prior comorbidities and risk factors of cardiovascular diseases. There was a significant increase in the proportion of patients on statins after PCI.

DU2

EXAMPLE OF ANALYSIS UTILIZING REAL WORLD DATA: MEDICAL COST REDUCTION OF COMBINATION DRUGS

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OBJECTIVES: This research aims to have a trial calculation on the medical cost reduction for the patient group prescribed the combination drug of ARB and calcium antagonist (a Combination Drug Group) against the patient group prescribed the combination use of ARB and calcium antagonist (a Combined Application Group). **METHODS:** We used the data of Japan Medical Data Center (JMDC), which provides health insurance claims data with linked health check-up data of 1.7 million members from health insurance societies in Japan. Since the data is not based on randomized controlled trial, we adjusted confounding factors using propensity score analysis. Through the examination, we found that the propensity score can be modeled by logistic regression including following four variables: age, square of age, log of medical cost before index time and square of log of medical cost before index time. **RESULTS:** As a result of our research, we estimated the adjusted average of medical cost for Combination Drug Group is lower by 900 yen per a month than that for Combined Application Group, which represents 1.7% of adjusted average monthly medical cost for Combined Application Group, 52,100 yen. **CONCLUSIONS:** Our research utilizing the real world data concluded that the combination drug of ARB and calcium antagonist can have a reductive, though limited, impact on the medical cost. Considering the general tendency that the medication cost itself of combination drug is higher than that of the combined use of drugs, we conclude that the result shows meaningful example of real world data analysis.