SUN-618: Decision Analysis for Glucagon-Like Peptide Receptor Agonists vs. Sodium-Glucose Cotransporter 2 Inhibitors in Type 2 Diabetes Mellitus

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Background: Cardiovascular outcome trials (CVOT) of glucagon-like peptide-1receptor agonists (GLP-1 RA) and sodium-glucose co-transporter 2 inhibitors (SGLT2i) demonstrated reduction of major adverse cardiovascular events (MACE), cardiovascular deaths (CVD), and renal outcomes (RO). Objective. Evaluation of data to assist in the prescribing decision with regard to severity of illness and risk for adverse events.

Study Design: Systemic review of the major CVOT and previous meta-analyses.

Main Outcome Measures: Analysis of six trials on GLP-1 RA and 4 trials on SGLT2i, showed both drug classes reduced MACE and CVD compared to controls, with neither class preferred (comparison GLP1-RA vs SGLT2i: (relative rate, rr MACE= 1.09, 95%CI;0.98,1.22, p= 0.129; rr, CVD =1.04, CI;0.87,1.24, p=0.657). Hospitalization for heart failure (HHF) improved with SGLT2i (rr=0.68, CI; 0.61,0.76, p<0.001) but not with GLP-1 RA, (rr = 0.94, CI; 0.86,1.03, p=0.17). Both GLP-1 RA and SGLT2i showed significant reduction in RO (GLP-1RA, rr=0.83, CI; 0.75,0.912, p=<0.001, SGLT2i, rr=0.0.67, CI; 0.57,0.79, p=0.001) without a preferential difference between the classes (GLP-1 RA vs SGLT2i, relative difference (rd) =0.005, CI;-0.011,0.021, p=0.532, number needed to treat (NNT)=200). Serious adverse events (SAE) for SGLT2i were predominantly mycotic genital infections in women (number needed to harm (NNH) =13 and diabetic ketoacidosis NNH=595. Gastrointestinal intolerance was the major SAE in the GLP1-RA class (NNH=35).

Conclusion: Both GLP-1 RA and SGLT2i classes showed similar reduction in MACE, CVD, and RO. SGLT2i have advantages over GLP-1 RA in reduction in HHF especially in those with more severe cardiovascular disease risk.