ADOPT: The effectiveness of metformin versus glyburide in type 2 diabetes

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Background and Aims: UKPDS reported similar HbA_{1c} responses in overweight (≥120% ideal body weight, mean BMI 31.4 kg/m^2) type 2 diabetic patients treated with metformin (MET) or sulphonylurea. ADOPT (A Diabetes Outcome Progression Trial) compared initial oral monotherapies in recently diagnosed type 2 diabetic patients and found rosiglitazone (RSG) to be superior to MET and glyburide (GLY), as assessed by time to monotherapy failure (time to the first of two successive fasting plasma glucose [FPG] values >180mg/dl). Here, we present a prespecified secondary analysis from ADOPT comparing the efficacy of MET and GLY.
Materials and Methods: Eligible patients (diagnosed with type 2 diabetes within 3 years) were 30-75 years of age and had FPG levels 126-180 mg/dl with lifestyle management alone. Mean BMI was 32.2 kg/m^2. Treatment was randomised and study medication was titrated to a total daily dose of 2 g MET (n=1454) or 15 mg GLY (n=1441).
Results: Compared with GLY, the risk of monotherapy failure was reduced by 46.5% with MET treatment ($p<0.01$). At 4 years, 36% of patients in the MET group had HbA_{1c} <7% and remained on monotherapy compared with 26% in the GLY group ($p<0.01$). A longitudinal linear model showed that MET maintained a group mean HbA_{1c} of <7% until month 45, while GLY did so until month 33. Higher incidences of gastrointestinal adverse events were reported with MET treatment (38% vs. 22%, $p<0.01$); however, the occurrence of hypoglycemia was lower (12% vs. 39%, $p<0.01$). In contrast to patients treated with MET, GLY-treated patients gained weight at 4 years (-2.53 kg vs. 1.81 kg, respectively, $p<0.01$).
Conclusion: ADOPT demonstrated that in patients with recently diagnosed type 2 diabetes, MET is more effective than GLY, providing more durable glycemic control with less hypoglycemia and without weight gain.