

Glucagon-like peptide 1 (GLP-1) receptor agonists in overweight patients with type 2 diabetes with and without CKD

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Introduction

Recent evidence suggests that GLP-1 agonists (Liraglutide and Dulaglutide) improve renal and cardiovascular outcomes in patients with diabetic kidney disease. In this work, we describe single centre experience of 75 patients with Type 2 diabetes on GLP-1 agonist attending diabetes or diabetes-renal clinics. We assessed glycaemic control, weight and kidney function in patients with and without CKD before and after commencing GLP-1 agonist.

Methods

This was a retrospective cohort study. Patient demographics: n=75, 44 female, 31 males. Mean age 63 ± 1.25 years, Ethnicity-18 Asian, 16 Black, 40 white and 1 other. The majority of patients were on Liraglutide (n=62), 5 were on Exenatide (Bydureon), 7 on Exenatide (Byetta), 1 on Lexisenatide. 48 patients (64%) had eGFR >60, 18 patients (24%) were in CKD G3, 3 were in stage G4 (4%), no eGFR data available on 6 subjects. There were 21 patients (28%) with eGFR <60. We analysed weight, HbA1C and eGFR before and after (6m and 12m) starting GLP-1 agonist.

Results

Patients with eGFR >60: Weight before starting GLP-1 agonist: Mean 98.6 kg (92.10-114.9 kg), 6m post initiation of GLP-1 agonist- Mean 96.6 kg (88.5-109.7 kg, P <0.001), 12m post initiation of GLP-1 agonist- 96.1 Kg (87.0-109.3 Kg, P <0.001).

Glycaemic control: There was significant reductions in HbA1C both at 6m and 12m (Pre HbA1C- 67.5mmol/mol (58-85.5), 6m post 66 mmol/mol (53-80, P <0.05), At 12m: HbA1C-61.0 mmol/mol (51.0-75, P <0.05).

Patients with eGFR <60: Weight loss after 6m was not significant (Mean pre wt-100.7 ±4.37 Kg, Mean post Wt 98.7± 4.5 Kg, P=0.72). In this group, weight loss at 12m was significant (Pre wt 100.7 ±4.37Kg, post wt 97.0±5 Kg, P <0.05).

Glycaemic control: Pre HbA1C 69 mmol/mol (64.5-87.0), 6m post 69.5 mmol/mol (56.8-76.3, P= 0.46); 12m post -69.5 mmol/mol (51.5-82.8, P=0.3).

Kidney function: There was no difference in kidney function assessed by eGFR 6m and 12m after initiation of GLP-1 agonist.

Discussion

In this cohort, GLP-1 agonist treatment resulted in significant reduction in weight and HbA1C at 6m and 12m in patents with eGFR >60 but in those with baseline eGFR of <60, significant weight reduction was only seen at 12m. Significant reductions in HbA1C seen in patients with eGFR >60 was not seen in patients with eGFR <60 at both time points. This could be due to smaller patient numbers in eGFR <60 group. There was no difference in eGFR before and after commencement of GLP-1 agonist. We could not demonstrate beneficial effect of GLP-1 agonists in patients with CKD apart from weight loss 12- month post initiation.