

Initial experience of SGLT2 inhibitor use in Type 2 Diabetes

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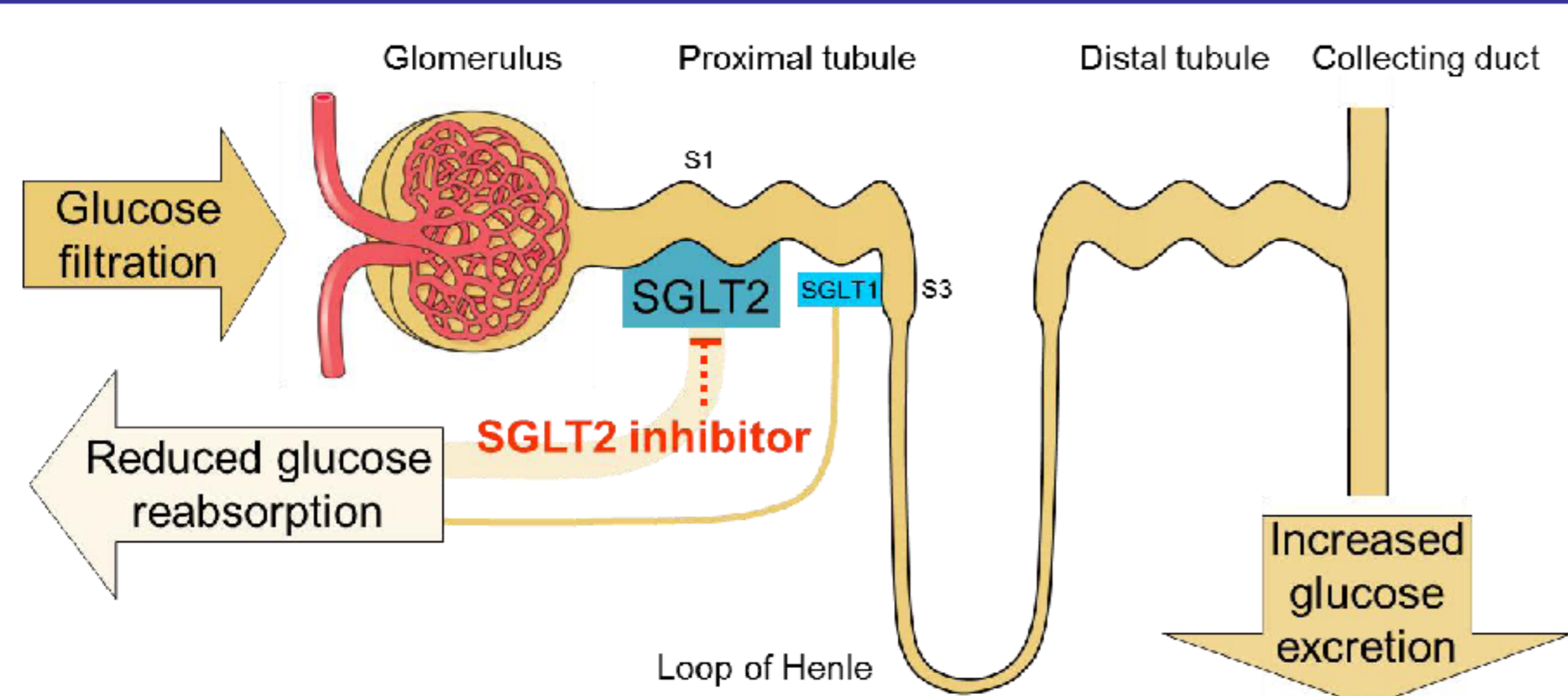
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Background

Sodium glucose co-transporter type 2 inhibitors (SGLT2) inhibitors offer a novel approach to glucose lowering in type 2 diabetes, based upon wider understanding of the kidney's role in glucose homeostasis. SGLT2 inhibitors decrease renal glucose reabsorption and results in enhanced urinary glucose excretion.¹ Phase 3 clinical trials have demonstrated consistent glucose lowering effects and weight loss following SGLT2 inhibition.¹

Mode of action



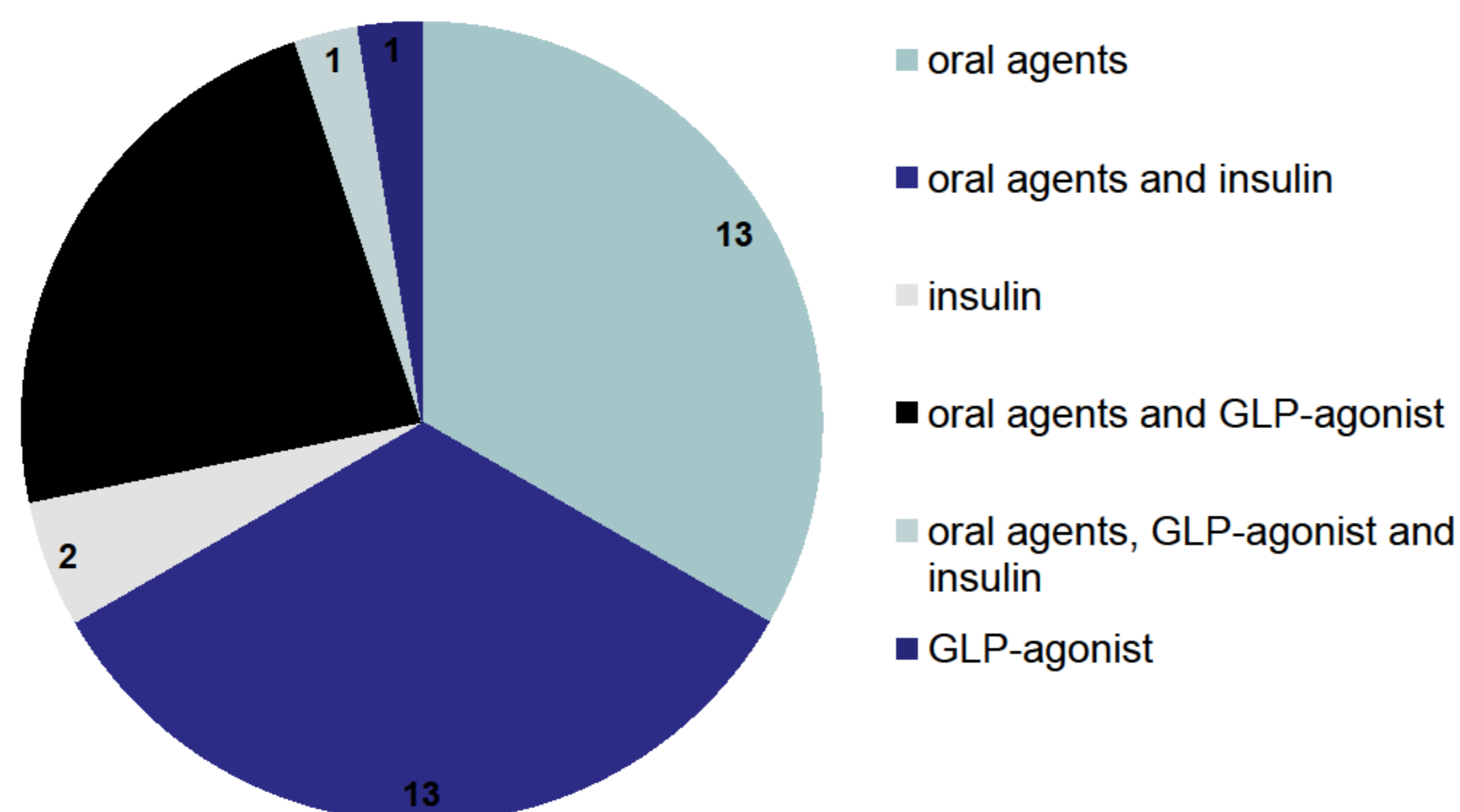
Wright EM. *Am J Physiol Renal Physiol* 2001;280:F10-8; Lee YJ, et al. *Kidney Int Suppl* 2007;106:S27-35; Han S. *Diabetes* 2008;57:1723-9.

Methods

Patients attending diabetes clinic who had been treated with an SGLT2 inhibitor were identified. Data including age, gender, diabetes duration, baseline therapy and clinical parameters of HbA_{1c}, weight, BMI, renal function and blood pressure (BP) were collected retrospectively from a hospital database and laboratory system. Clinical parameters at treatment initiation and most recent clinic follow up were analysed.

Demographics

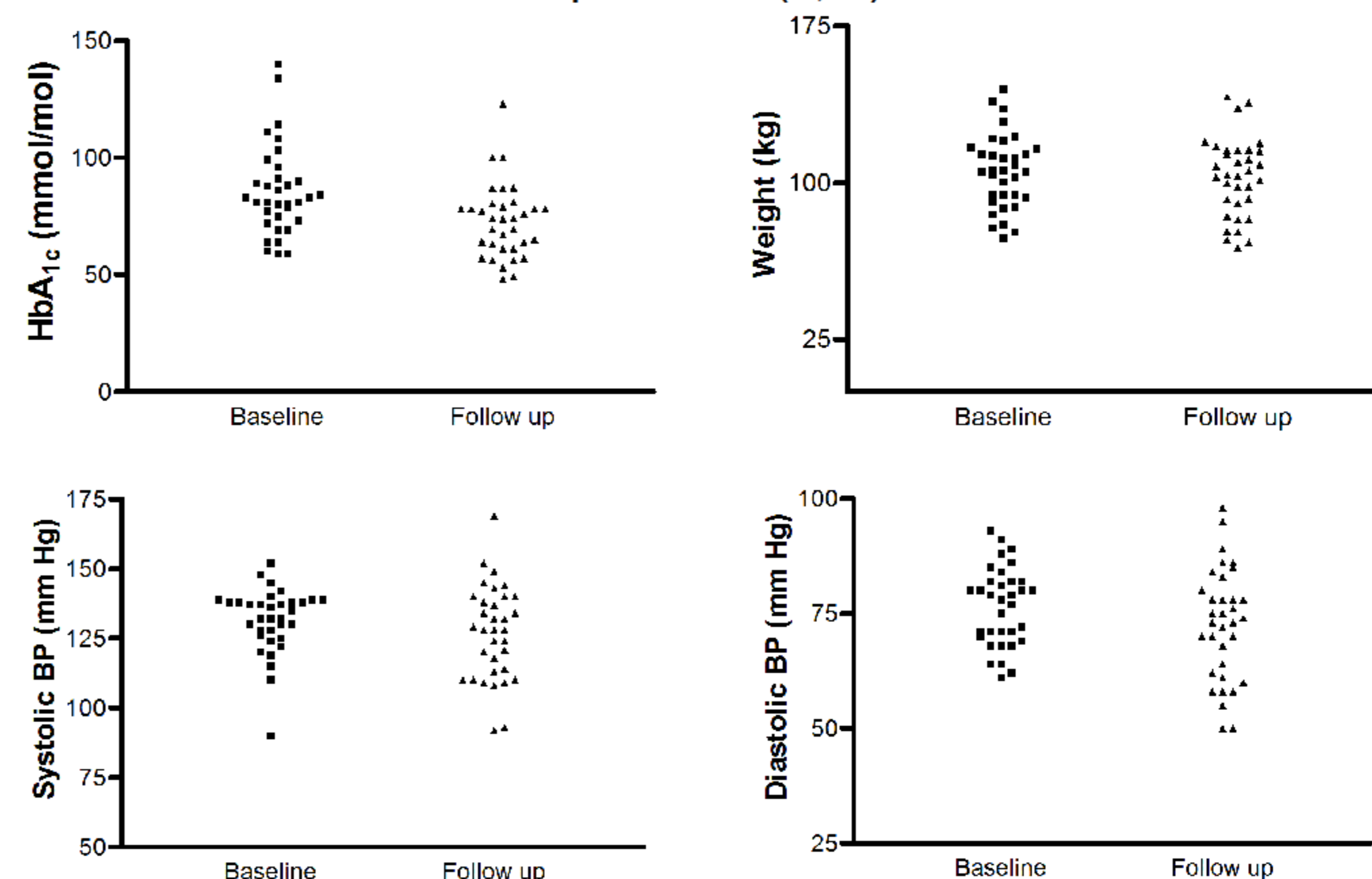
- Data from 34 patients (23M/ 11F) was analysed.
- Mean age 55.2 years (range 27-76 years).
- Mean diabetes duration of 9 years (range 0.9-26.8 years).
- Mean follow up period of 144 days. Median duration of SGLT2 inhibitor treatment of 123 days (range: 25-359 days)
- 13 patients were treated with dual oral agents and 15 with insulin (16-540 units)
- Baseline therapies are demonstrated below.



RESULTS

	Baseline	Follow up	p-value
HbA _{1c} (mmol/mol)	85.6	72.7	<0.01
Weight (Kg)	105.3	102.6	<0.01
BMI (Kg/m ²)	36.1	35.2	<0.01
Systolic BP (mmHg)	130.4	126.9	0.31
Diastolic BP (mmHg)	76.5	72.8	0.08

Significant improvements in glycaemic control (a) were observed in most cases with associated weight loss (b). There was a trend for reduction in diastolic blood pressure (c, d).



- Non responders were comparable to responders in terms of weight, age and duration of diabetes
- 1 patient discontinued treatment due to genital mycotic infections.
- 11 of 16 patients treated with insulin maintained a stable dose or achieved a dose reduction.
- Improvements in glycaemic control allowed for withdrawal of other agents in 3 patients including prandial insulin in 1 individual.

NICE guidance

Currently SGLT2 inhibitors are recommended by NICE in combination with metformin or insulin but not as triple therapy with a sulphonylurea and metformin. 10 of our patients were prescribed dapagliflozin as a triple oral agent. In 3 cases this was to delay injectable therapy – 1 patient was a taxi driver and 2 others documented patient preference.

Summary and conclusions

This audit of our early experience with the SGLT2 inhibitor Dapagliflozin highlighted clinically meaningful and significant improvements in indices of HbA_{1c}, weight and BMI. Only 1 patient in those surveyed was intolerant due to side effects. Longer term follow up for evidence of sustained drug efficacy is awaited.

References

- Hasan FM et al. *Diabetes Res Clin Pract*.2014 Jun; 104(3):297-322
- www.nice.org.uk

