Initial experience of SGLT2 inhibitor use in Type 2 Diabetes

B. Cooke, K. Ryan, M. Gormley, J.R. Lindsay

Diabetes & Endocrinology, Mater Infirmorum Hospital, Belfast Health & Social Care Trust, Belfast, Northern Ireland, BT14 6AB.

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. Phase 3 clinical trials have demonstrated consistent glucose lowering effects and weight loss following SGLT2 inhibition.

Mode of action

SGLT2 inhibitors

RESULTS

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Follow up</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HbA1c (mmol/mol)</td>
<td>85.6</td>
<td>72.7</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Weight (Kg)</td>
<td>105.3</td>
<td>102.6</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>BMI (Kg/m²)</td>
<td>36.1</td>
<td>35.2</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Systolic BP (mmHg)</td>
<td>130.4</td>
<td>126.9</td>
<td>0.31</td>
</tr>
<tr>
<td>Diastolic BP (mmHg)</td>
<td>76.5</td>
<td>72.8</td>
<td>0.08</td>
</tr>
</tbody>
</table>

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).

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 HbA1c, 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.

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 HbA1c, 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

2. www.nice.org.uk