Does dapagliflozin affect the metabolic response in patients with elevated alanine aminotransferase (ALT) and Type 2 diabetes?: the Association of British Clinical Diabetologists (ABCD) nationwide dapagliflozin audit

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Aims

To evaluate the effect of: (1) dapagliflozin on metabolic response in patients with elevated alanine aminotransferase(ALT); (2) baseline ALT on metabolic response to dapagliflozin

- Collected anonymised data of patients treated with dapagliflozin in the UK
  - Patient demographics
  - HbA1c, weight, BMI, Systolic BP
  - Diabetes medications
  - Adverse events

Results

Baseline Characteristics

<table>
<thead>
<tr>
<th>HbA1c (%)</th>
<th>ALT&lt;30U/l</th>
<th>ALT 30-50U/l</th>
<th>ALT&gt;50U/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>49.2</td>
<td>65.2</td>
<td>66.3</td>
<td></td>
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</tbody>
</table>

(Age in years) 56.9±10.1, 57±10.3, 55±9.8, 56.9±10.1

(Diabetes duration in years) 12.0(7.0-17.0), 9.0(3.0-15.0), 6.0(3.0-12.5)

(HbA1c in mmol/mol) 79±16.9, 78±15.7, 77±16.7

(BMI in kg/m²) 35±8.4, 36.24±9.3, 35.7±6.7

(ALT in U/l) 21.0(17.0-25.0), 30.0(30.0-41.0), 30.0(30.0-73.5)

Methods

- Selection of patients with both baseline and follow up ALT values with a median of 6.0(4.0-9.0) months
- Categorised into three groups depending on baseline ALT: ALT<30U/l, ALT 30-50U/l and ALT>50U/l
- Descriptive analysis
- Changes in ALT, weight and HbA1c over time were calculated within and between ALT groups (Wilcoxon signed rank test)
- The relationship between baseline variables including ALT and the metabolic response was assessed (Spearman’s correlation).

Results

Correlation

<table>
<thead>
<tr>
<th>Change in ALT- Spearman’s Rank Correlation coefficient</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in HbA1c</td>
<td>0.1</td>
</tr>
<tr>
<td>Change in weight</td>
<td>-0.06</td>
</tr>
<tr>
<td>Baseline ALT</td>
<td>0.5</td>
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</table>

Conclusion

- Apart from positive impact on glycaemic control and weight, dapagliflozin has a statistically and clinically significant response on ALT reduction in Type 2 diabetes patients with a high baseline ALT≥30U/l.

- This result may have implications regarding the insulin resistance associated with fatty liver and non-alcoholic fatty liver disease.

Acknowledgement

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