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

| Dates of Audit	2014-15
Centres	57
Contributors	147
Total Patients	1725

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

Baseline Characteristics

| n(%)	ALT<30U/l n=250 (44.8)	ALT 30-50U/l n=209(37.1)	ALT>50U/l n=101(18.1)	
Males(%)	49.2	65.2	66.3	
Age(years)	58.9±10.1	57.1±10.3	55.9±8.5	Vs Combined
Diabetes duration(yrs)	12.0(7.0-17.0)	9.0(3.0-15.0)	6.0(4.0-12.5)	Clinical Trials -
HbA1c(mmol/mol)	79.2±16.9	78.1±17.5	79.2±16.7	Dapagliflozin
HbA1c(%)	9.4±1.5	9.3±1.3	9.4±1.3	7.96
BMI(kg/m²)	35.8±8.4	36.2±9.9	35.7±6.7	32.16
Weight(Kg)	99.2±21.9	103.3±24.1	103.1±19.6	
ALT(U/l)	21.0(17.0-25.0)	37.0(33.0-41.0)	63.0(57.0-73.5)	

HbA1c Response to Dapagliflozin
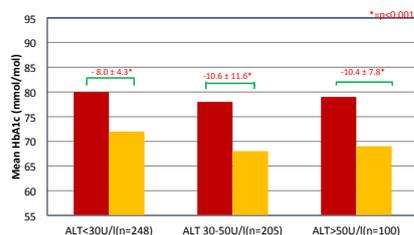
Weight Response to Dapagliflozin
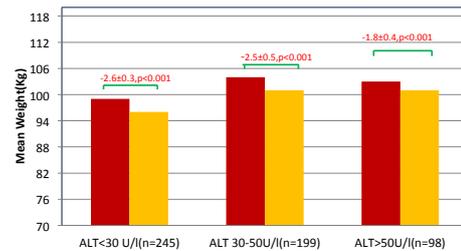
ALT response to Dapagliflozin
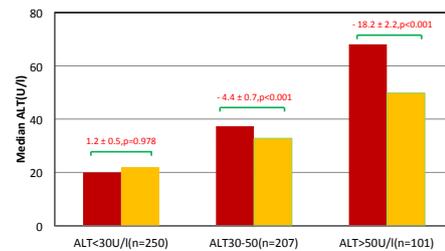
Correlation

Change in ALT- Correlation with:	Spearman's Rank Correlation coefficient	P-value
Change in HbA1c	0.1	<0.05
Change in weight	-0.06	0.18
Baseline ALT	0.5	<0.01

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

ABCD
Association of British Clinical Diabetologists

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