

**1 Combined insulin and liraglutide therapy is associated with metabolic improvement and reduction in insulin dose in commonly prescribed insulin regimens: an ABCD liraglutide audit analysis**

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**Background:** Liraglutide added to insulin is not licensed or supported by NICE.

**Aims:** To evaluate the efficacy and safety of liraglutide added to common insulin regimes.

**Methods:** Data was obtained from the ABCD nationwide audit of liraglutide in real-clinical use (2009-2013, n=5643). Descriptive statistics were performed, expressed as % frequency, mean $\pm$ SD or median(IQR). Patients were categorised according to their insulin regime at liraglutide initiation: 0–none, 1-basal, 2- basal-bolus, 3-biphasic. Changes in HbA1c, BMI, weight and insulin dose at first return visit were calculated within and between groups (paired t-test, ANOVA).

**Results:** Of 5551 patients (53.8% males, 89.7% Caucasian, 55.5 $\pm$ 11.0 years, diabetes duration 9.0(6.0-13.0) years, HbA1c 9.4 $\pm$ 1.7%, BMI 38.8 $\pm$ 7.3kg/m<sup>2</sup>, weight 110.5 $\pm$ 22.8kg), insulin was co-prescribed in 2102(37.9%) with 660(31.4%) on basal, 710(33.8%) on basal-bolus, 732(34.8%) on biphasic insulin regimes.

There was a reduction in HbA1c (no insulin 9.3 $\pm$ 1.7 to 8.3 $\pm$ 1.7%; basal 9.3 $\pm$ 1.6 to 8.5 $\pm$ 1.7%; basal-bolus 9.6 $\pm$ 1.6 to 8.8 $\pm$ 1.7%; biphasic 9.3 $\pm$ 1.8 to 8.5 $\pm$ 1.7%), weight (no insulin 110.5 $\pm$ 22.8 to 107.8 $\pm$ 22.4kg; basal 108.9 $\pm$ 21.4 to 106.1 $\pm$ 20.9kg; basal-bolus 110.3 $\pm$ 20.9 to 108.2 $\pm$ 21.2kg; biphasic 111.5 $\pm$ 24.1 to 108.6 $\pm$ 23.5kg) and insulin dose (basal 60.0(30.0-116.0) to 46.0(4.0-93.5) units; basal-bolus 120.0(74.5-201.5) to 83.0(38.5- 163.0) units; biphasic 90.0(56.0-136.0) to 66.0(0.0-99.5) units) in all groups (P<0.0001) with a median follow-up interval of 3.8(2.8-5.9) months. There was no difference in reported frequency of hypoglycaemia or in liraglutide cessation between the non-insulin and insulin groups.

**Conclusion:** Patients for whom liraglutide is added to insulin in any of the common insulin regimes show i) comparable improvement in metabolic parameters to those not on insulin; ii) considerable reduction in total daily insulin dose.