**Supplementary table: Subject characteristics**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Placebo group(N=15) | Lixisenatide group(N=15) | Total(N=30) |
| Male (n (%)) | 11 (73%) | 10 (67%) | 21 (70%) |
| Age, years (mean (SD)) | 67.2 (5.9) | 67.1 (6.2) | 67.1 (6.0) |
| Weight, kg (mean (SD)) | 92.2 (17.0) | 88.5 (14.4) | 90.4 (15.6) |
| BMI, kg.m-2 (mean (SD)) | 32.1 (6.1) | 32.0 (4.1) | 32.1 (5.1) |
| Duration of diabetes, years (median (IQR)) | 7.5 (5.0-12.0) | 4.0 (2.5-9.0) | 5.5 (3.0-10.0) |
| Duration of metformin use, years (median (IQR)) | 1.0 (0.5-5.0) | 2.0 (1.5-5.0) | 2.0 (1.0-5.0) |
| HbA1c (mean (SD)) | % | 7.3 (0.6) | 6.9 (0.4) | 7.1 (0.6) |
| mmol.mol-1 | 56 (6.6) | 52 (4.4) | 54 (6.6) |

***Supplementary Figure 1***

CONSORT diagram showing the recruitment and withdrawal of participants.



***Supplementary Figure 2***

-cell glucose sensitivity across the range of blood glucose concentrations at baseline (day 0, unfilled circles) and after 8 weeks’ treatment with placebo (n=15, left panel) or lixisenatide (n=15, right panel) (day 56, filled circles) in 30 metformin-treated patients with type 2 diabetes. Data are mean (SD). The ratio of adjusted geometric means for the integrated values for lixisenatide and placebo at day 56 was 2.10 (95% CI 1.48, 2.98; \*P<0.001).

