U.K. prospective diabetes study. II. Reduction in HbA1c with basal insulin supplement, sulfonylurea, or biguanide therapy in maturity-onset diabetes. A multicenter study.

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Newly presenting maturity-onset diabetic subjects were put on diet and if, after 3-4 mo, their fasting plasma glucose continued greater than 6 mmol/L, they were randomized to three therapies: (1) continuing diet alone, (2) with additional sulfonylurea, or (3) with additional basal insulin supplement provided by ultralente insulin. Obese patients were also randomized to metformin therapy. The aim was to lower the fasting plasma glucose to less than 6 mmol/L and the degree to which this reduced the hemoglobin A1C (HbA1C) concentration was studied in 195 patients over 1 yr. Sulfonylurea and insulin similarly reduced (P less than 0.001) the fasting plasma glucose from 8.3 +/- 1.9 to 6.7 +/- 1.3 mmol/L (mean +/- 1 SD) and 8.6 +/- 2.2 to 6.8 +/- 1.4 mmol/L, respectively. This was accompanied by a significant reduction (P less than 0.001) of the HbA1C to the high normal range, from 9.1 +/- 2.1% to 7.8 +/- 1.2%, and from 9.1 +/- 1.9% to 8.1 +/- 1.3%, respectively, both values at 1 yr being significantly (P less than 0.05) lower than in patients randomized to diet alone. Patients randomized to diet alone had little change in fasting plasma glucose (8.6 +/- 1.8 to 9.3 +/- 2.3 mmol/L) or HbA1C (8.8 +/- 1.7% to 9.1 +/- 1.6%, respectively). Thus, the simple therapeutic aim of trying to reduce the fasting plasma glucose to less than 6 mmol/L is an effective means of reducing the HbA1C to a high-normal level. The HbA1C and fasting plasma glucose concentrations were similarly related for all three therapies (HbA1C [%] = 0.47 X fasting plasma glucose [mmol/L] + 4.7).(ABSTRACT TRUNCATED AT 250 WORDS)