UK Prospective Study of Therapies of Maturity-Onset Diabetes
1.Effect of Diet, Sulphonylurea, Insulin or Biguanide Therapy on Fasting Plasma Glucose and Body Weight Over One Year.

UKPDS Study Group

Diabetologia 1983 24: 404-411

Summary: A multi-centre, prospective randomized study of the therapy of maturity-onset diabetes has been started, and we report progress of the first 286 patients with 1-year follow-up. Newly presenting patients (aged 25-65 years inclusive) were initially treated by diet and divided into three categories. (1) Forty-one patients (14%) were 'primary diet failure' in that they continued to have symptoms or their fasting plasma glucose remained >15 mmol/l. Their therapy was allocated randomly to insulin, chlorpropamide or glibenclamide, and doses adjusted to try to maintain a fasting plasma glucose <6 mmol/l. Insulin produced a similar decrease in fasting plasma glucose to sulphonylurea therapy (median fasting plasma glucose fell from 15.4 to 8.0 mmol/l and from 15.5 to 8.6 mmol/l, respectively). (2) After 3-4 months diet, 161 patients (56%) were asymptomatic but had a fasting plasma glucose >6 mmol/l. In the 'main randomisation' their therapy was allocated to diet only, or diet plus chlorpropamide, glibenclamide or a basal insulin supplement from ultralente insulin. On diet alone, fasting plasma glucose remained constant over 1-year follow-up (from 7.7 to 7.6 mmol/l), whereas it was reduced significantly by insulin (from 8.0 to 6.4 mmol/l), chlorpropamide (8.6 to 6.1 mmol/l) and glibenclamide (7.8 to 6.5 mmol/l). On diet alone, weight remained unchanged over 1 year but increased significantly on insulin, chlorpropamide or glibenclamide (median change ideal body weight +3.5%, +4% and +4%, respectively). Obese patients (>20% over ideal weight) did not differ from normal weight diabetic subjects in either fasting plasma glucose or weight changes. Insulin therapy was associated with few hypoglycaemic episodes, with 8% of patients on ultralente insulin alone reporting an episode compared with 7% on chlorpropamide. Fifty-one patients (86%) randomized to insulin remain on it 1 year later. (3) After 3-4 months on diet, 84 patients (30%) after dieting had a fasting plasma glucose <6 mmol/l. During the following year on diet alone 34 patients were less well controlled with a fasting plasma glucose >6 mmol/l and were included in a 'delayed randomisation'. Thus 83% of all patients entered into the study had their therapy randomized by 1 year. Insulin and sulphonylurea therapy are equally effective in reducing glycaemia, and the study is being extended to determine if either therapy will prevent the complications of diabetes or have untoward long-term side effects.