of fixed doses of oral hypoglycemic agents and proper diet on the natural history of the disease. Each of them was asymptomatic, had normal fasting blood glucose levels, but had two abnormal oral glucose tolerance tests prior to entering the study. They were randomly assigned to four groups, each group taking a different drug. In each group one out of every four subjects was placed on a placebo (fig 1). The drugs used were: Chlorpropamide 100 mg daily, Tolbutamide 500 mg twice daily, Phenformin 50 mg daly and Acetohexamide 250 mg daily, Drug adherence was assessed by history during the follow up visits every three months. Each subject was given an individualized diet aimed at attaining and maintaining ideal weight as defined by the Metropolitan Life Insurance Company—1959.

In this prelminary report, only male subjects who had at least two tests and complete data (namely, glucose, insulin, cholesterole and triglyceride values) in the initial (test 1) and subsequent tests (test 2–5) were included. As shown in table 1, there were 37 in the placebo group, 18 in the chlorpropamide, 28 in the tolbutamide group, 23 in the phenformin group and 14 in the acetohexamide group. As the follow up years increased, the number of subjects in each group decreased.

Each subject had an oral glucose tolerance test (100 mg dextrose) at the beginning of the study (test 1) and then annually during the follow up years. Each subject followed his usual diet which contained 100–200 grams carbohydrate and took no medication on the day of the test. Each test was done after an overnight fast and begun between 0800 and 0900 hours. Blood samples were obtained by venipuncture prior to and at 30, 60, 120 and 180 minutes after ingesting the glucose. Blood glucose was measured by Hoffman's method as modified for the AutoAnalyzer (*21*). Serum insulin was assayed by the double antbody method of Soeldner and Slone (*22*). Serum cholesterole and triglycerides were measured by the Technicon AutoAnalyzer method (*23*).

The criteria for an abnormal oral glucose tolerance test are those used in the Joslin Clinic. A test was judged abnormal if any one blood glucose value at a given time interval exceeded that listed below: Fasting = 100 mg/dl, 30 min. = 160 mg/dl, 60 min = 160 mg/dl, 120 min = 120 mg/dl and 180 min–110 mg/dl.

The criteria for normal fasting serum cholesterol and triglycerides are those of Goldstein et al (*24*).

Statistical analyses were done by Chi Square, paired and unpaired Students' t–tests as indicated.

COMPARISON OF THE GROUPS AT THE BEGINNING OF THE STUDY

The placebo group did not differ significantly from each of the treated groups in mean age and percent ideal weight at the beginning of the study and in subsequent years (table 2). The percentage of obese subjects n each group was also comparable. A comparison of the percent ideal weight of the subjects in each between the initial test and each of the subsequent tests was made by paired 't' analysis. No significant difference was noted except in the phenformin group. In this group there was a significant decrease in percent ideal weight in test 2 (100.2 ± 2.9 $p < 0.01$) and test 5 (98.2 ± 3.7 $p < 0.01$).

The glucose tolerance and insulin secretion dynamcs during the initial test showed no significant differences between the placebo and each of the drug treated groups (fig 2).

COMPARISON BETWEEN AND WITHIN GROUPS

In tables 3 to 5, two types of comparisons are made by Chi Square analysis. The between group comparison (shown vertically) compares the placebo group with each of the drug group in each test. The within group comparison (shown horizontally) compares test 1 with each of the subsequent four test in each group. As shown n the tables, each comparison consists of two numerators and one denominator. The two numerators represent the number of subjects wth normal values in each test being compared. The denominator of each comparison represents the total number of subjects who had the two tests under consideration.

References at end of article.