had normal fasting cholesterol levels. In the between group comparison by chi square analysis, the following results were obtained: compared with the placebo group (a) the chlorpropamide group had a significantly greater number of subjects with normal values in test 2 and (b) the acetohexamide group had greater number of subjects with normal values in all tests. Comparison made by unpaired 't' test indicated that only the acetohexamide group differed from the placebo group and ony in test 1, 2 and 3. The within group comparison by chi square analysis showed no significant difference between test 1 and each of the follow up tests in all five groups. However, by paired 't' analysis, the phenformin group showed higher fastng cholesterol levels in test 3 and 5 when compared with test 1. None of the other groups showed any significant differences.

LIPID DYNAMICS DURING ORAL GLUCOSE TOLERANCE TEST

Fig 4 shows the serum cholesterol and triglyceride changes during the initial test for the entire group. By paired 't' analysis, there was a significant increase over baseline (7–12%) in the serum triglyceride at half and one hour followed by a significant decrease (6%) at three hours after the ingestion of glucose. On the other hand, the serum cholesterol showed a significant decrease at one, two and three hours after the ingestion of glucose. This pattern of change in serum triglyceride and cholesterol was seen in all five groups and in all five tests.

MORTALITY

During the study period, the following deaths occurred in the entire group of 365 patients. In the placebo group, two males died with myocardial infarction, one male by automobile accident. In the chlorpropamide group, one female died of uremia. In the tobutamide group, one male died by automobile accident and one female by reticulum cell sarcoma. In the phenformin group, one male died with a pulmonary embolus and in the acetohexamide group, one male died with carcinoma of the lung and one female with myocardial infarction. In the group reported here, the only deaths were two males in the placebo group who died of myocardial infarction.

DISCUSSION

In this study the number of subjects with normal glucose tolerance signifi cantly greater in the placebo (diet treated), tolbutamide and chlorpropamide groups after one year of treatment. In the tolbutamide and chlorpropamide groups this improvement was still present after two and three years of therapy respectively. This improvement was not related to weight loss in these subjects.

Improvement of glucose tolerance in chemical diabetics on placebo therapy has been reported by Wilansky and Shochat (*2*). This was also reported in diabetics by Turtle (*8*) but not by Arky and Abramson (*5*). This current study shows that this improvement is transient, being present only in the first follow up test. Whether this is due to spontaneous remission secondary to rigid adherence to diet or other factors remains ot be elucidated.

Improvement in glucose tolerance during chlorpropamide (*5, 7, 9, 14–16*), tolbutamide (*1, 3, 4, 14*), acetohexamide (*6*), tolazamide (*8*) and glybenclamide (*10–13*) therapy has been reported previously and this study corroborates these findings. In contrast, this study did not confirm the finding that chemical diabetics or diabetics, when treated with phenformin, improved their glucose tolerance (*2, 5, 25*). This apparently is not because the subjects in this study are on fixed doses of phenformin (50 mg daily) as Wilansky and Shochat's subjects were on a similar dose.

A possible explanation for the improved glucose tolerance in chemical diabetics treated with sulfonylureas is increased insulin secretion in response to glucose. Indeed, several groups have demonstraetd an increase in insulin secretion during glucose tolerance tests in diabetics after short term therapy with sulfonylureas, i.e., one week (*14*), three weeks of therapy (*5*), four weeks of therapy (*16, 26*), seven weeks of therapy (*7*) and eight weeks of therapy (*4, 6*). Two other groups (*15, 27*) reported higher insulin secretion in diabetics when they were on sulfonylurea therapy than when they were off therapy.

References at end of article.