

THE EFFECTS OF LONG TERM THERAPY WITH ORAL HYPOLYCEMIC AGENTS ON THE
ORAL GLUCOSE TOLERANCE TEST DYNAMICS IN CHEMICAL DIABETICS

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ABSTRACT

The effect of fixed doses of oral hypoglycemic agents and placebo upon the blood glucose, serum insulin, triglyceride and cholesterol responses during oral glucose tolerance tests done annually for up to 4 years follow-up was studied, in a double blind manner, in 5 groups of mild chemical diabetics. The drugs used were chlorpropamide (100 mg O.D.), tolbutamide (500 mg b.i.d.), phenformin (50 mg C.D.), acetohexamide (250 mg O.D.) and placebo. Each subject was given an individualized diet aimed at attaining and maintaining ideal weight. Comparison by Chi square analysis between the placebo group and each of the drug groups showed: (a) no significant differences with regards to the number of subjects with normal glucose tolerance test in each of the tests and (b) no change in the insulin secretion dynamics. Comparison between the initial test and each of the subsequent tests within each group showed: (a) a greater number of subjects had normal glucose tolerance in test 2 in the placebo group, test 2 and 3 in the tolbutamide group and tests 2-4 in the chlorpropamide group; (b) no change in the insulin secretion dynamics except in the chlorpropamide group where there was an increase insulin/glucose ratio in test 2 and (c) no change in the fasting serum triglyceride and cholesterol levels.

INTRODUCTION

A goal in the detection of the early stages of diabetes mellitus is the hope that prompt therapeutic intervention may retard the clinical manifestations of the later stages of the disease. Both remission of the disease (1,2) and improvement of the carbohydrate tolerance (3-16) following the use of oral hypoglycemic agents have been reported. Some groups reported the improvement of the carbohydrate tolerance to be associated with increased insulin secretion (4-7) whilst others indicated otherwise (8-16). A lowering of fasting serum lipid levels in diabetics treated with oral hypoglycemic agents has also been reported (5, 10, 17-20). Most of the above studies were performed after relatively short term (weeks to months) therapy with the oral hypoglycemic agents. The present study reports on the effects of long term (up to four years) therapy with fixed doses of oral hypoglycemic agents and diet upon (a) the glucose tolerance, (b) the insulin secretion dynamics, and (c) the lipid dynamics during oral glucose tolerance tests of chemical diabetics.

METHODS AND SUBJECTS

Over a six year period, 365 mild chemical diabetics participated, with informed consent, in a double blind prospective study to evaluate the influence

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