DETECTING AND MANAGING METABOLIC SYNDROME: PRELIMINARY RESULTS

Metabolic syndrome is a constellation of risk factors associated with increased cardiovascular and diabetes risk. The major characteristics of metabolic syndrome include insulin resistance, abdominal obesity, hypertension, hypertriglyceridemia and low levels of high-density lipoprotein [HDL] (good) cholesterol. Clinical research indicates that behavioral change can dramatically modify and even reverse the factors of metabolic syndrome and its consequences. This project studied the effect of a moderate lifestyle intervention addressing metabolic risk factors and ultimately preventing heart disease and diabetes. The study included 108 participants, 54 in the control group and 54 in the intervention group. Participants were closely followed for a year; they continued regular visits with their physicians and had no additional visits for study purposes. At every visit, the intervention group participants received a 10–20 minute intervention on how to make positive lifestyle changes. In about 12 weeks, between the initial visit and first followup, 66.7% of the intervention group and 33.4% of the control group had lost weight. The median fasting triglyceride level for the intervention group decreased from 147 to 135 mg/dL and increased from 134 to 139 mg/dL for the control group. The median blood pressure decreased from 151/88 to 139/78 mm Hg in the intervention group and increased from 141/71 to 144/76 in the control group. These early results show a greater improvement in risk factors in the intervention group than in the control group. If these trends continue, education and lifestyle interventions will eventually be made available for all participants of the study.

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INTRODUCTION

The United States is facing a type 2 diabetes epidemic. Over the past 40 years, we have witnessed a six-fold increase in the number of people diagnosed with diabetes.[1] By 2025, the number of people with diabetes is projected to rise from 17 million (6.2% of the population) to 22 million. To stabilize or reverse these growth rates, we must address patients at risk for diabetes and heart disease before these conditions develop. Current guidelines developed by National Cholesterol Education Program, Adult Therapy Panel (NCEP ATPIII), clearly define metabolic syndrome as a precondition that leads to overt diabetes and its complications and to heart disease.[2] Patients with metabolic syndrome are those with at least 3 of the following 5 metabolic risk factors: obesity (central obesity), elevated blood pressure, elevated blood sugar (prediabetes) and abnormal lipids (low HDL and high triglycerides). Metabolic syndrome afflicts 1 in every 5 Americans and it dramatically increases cardiovascular disease risk.[3] Several recent clinical trials have established that pharmacological and, more importantly, lifestyle interventions can prevent or delay the development of overt diabetes. Some trials have demonstrated over 50% risk reduction.[4] This study aims at examining the effect of lifestyle intervention on metabolic syndrome risk factors, using a moderate approach to lifestyle intervention and education.

MATERIALS AND METHODS

Participants for this study included 108 patients diagnosed with metabolic syndrome. Participants were placed in one of two groups: control and intervention. Individuals were recruited from the John H. Stroger, Jr. Hospital of Cook County General Medicine Clinic. Written informed consent was acquired from all participants, consistent with the approval of Cook County Bureau of Health Services institutional review board.

Participants were diagnosed according to criteria from the National Cholesterol Education Program's Adult Treatment Panel III, that is 3 or more of the following conditions: waist circumference >40 inches in men and >35 inches in women; fasting triglyceride level of at least 150 mg/dL; high-density lipoprotein (HDL) cholesterol level <40 mg/dL in men and <50 mg/dL in women; blood pressure of ≥130/85 mm Hg; and fasting glucose level of ≥100 mg/dL. Participants who were being treated with anti-hypertension, triglyceride-lowering, or cholesterol-lowering medications were also counted as having the respective criteria.

A 30-minute initial talk was given to patients in the intervention group by a doctor and a diabetes educator/dietitian. Each patient was provided a referral to The Lifestyle Center (TLC) to learn about nutritional label reading, exercise, and other healthy lifestyle choices. An individualized "Passport For Healthy Living" containing information on metabolic syndrome was also provided. The passport provides the opportunity to identify which of their parameters are abnormal and personalize their goals. On subsequent visits with their primary care physicians, they had short interventions (10–20 minutes) with a diabetes educator/dietitian who discussed goal setting and nutrition and exercise information, and the importance of therapeutic life

style changes. Emphasis was placed on weight loss, increasing physical activity, decreasing fats, portion control, and healthier food group selection.

The patients in the control group were only told that they had metabolic syndrome and were advised to direct any questions they may have to their primary care physician.

Patients' metabolic syndrome parameters and weight will be followed in both patient groups for the duration of the study (one year). Fasting blood sugar and lipids are done at the discretion of the primary care physician when clinically indicated.

RESULTS

To date, followup visits were made by 11 control participants and 18 intervention participants. The time between visits is about 12 weeks.

In summary, median blood pressures and triglyceride levels were decreased in the intervention group and increased in the control group, and median glucose levels decreased in both groups.

DISCUSSION

Similar studies with more intense lifestyle interventions have demonstrated success in reducing metabolic syndrome risk factors. These early results show that even very moderate interventions make a difference in improving risk factors.

A busy clinic like the general medicine clinic is a difficult setting for changing staff roles and responsibilities. More thorough charting of waist circumference and other metabolic syndrome parameters would allow for a more complete analysis of patient progress.

As the study continues, trends of improvement could continue or discontinue. Eventually, if education proves to be feasible and beneficial, it will be made available to all patients.

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