CLINICAL RESEARCH STUDY

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Can Group Medical Clinics Improve Lipid Management in Diabetes?

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ABSTRACT

BACKGROUND: Group medical clinics may improve diabetes and hypertension control, but data about dyslipidemia are limited. We examined the impact of group medical clinics on lipids among patients with uncontrolled diabetes and hypertension.

METHODS: Prespecified secondary analysis of 239 veterans randomized to group medical clinics or usual care. Lipids were assessed at study baseline, midpoint, and end. We used linear mixed models to compare lipid levels between arms and generalized estimating equation models to compare low-density lipoprotein cholesterol (LDL-C) goal attainment. An additional post hoc analysis examined intensification of cholesterol-lowering medications in both arms.

RESULTS: At baseline, mean total cholesterol was 169.7 mg/dL (SD 47.8), LDL-C 98.2 mg/dL (SD 41.7), and high-density lipoprotein cholesterol (HDL-C) 39.3 mg/dL (SD 13.0). Median baseline triglycerides were 131 mg/dL (interquartile range 122). By study end, mean total cholesterol and LDL-C in group medical clinics were 14.2 mg/dL ($P = .01$) and 9.2 mg/dL ($P = .02$) lower than usual care, respectively; 76% of group medical clinic patients met goals for LDL-C, versus 61% of usual care patients ($P = .02$). Triglycerides and HDL-C remained similar between study arms. Treatment intensification occurred in 52% of group medical clinic patients, versus 37% of usual care patients between study baseline and end ($P = .04$). The mean statin dose was higher in group medical clinic patients at study midpoint and end.

CONCLUSIONS: Group medical clinics appear to enhance lipid management among patients with diabetes and hypertension. This may be a result of greater intensification of cholesterol-lowering medications in group medical clinics relative to usual care.

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KEYWORDS: Clinical inertia; Diabetes; Dyslipidemia; Group medical clinics; Treatment intensification

Diabetes mellitus generates substantial morbidity, mortality, health services utilization, and costs.[1,2] Cardiovascular disease is common among patients with diabetes, and further increases morbidity and costs within this population.[3] Effectively treating cardiovascular disease risk factors like hypertension and dyslipidemia lowers cardiovascular risk in diabetes patients.[4,5]

Group medical clinics are a care delivery strategy that has been examined in chronic illnesses including diabetes. Group medical clinics may improve cardiovascular disease risk-factor control by generating opportunities for medication

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management and group-based self-management education in a manner that may improve access and decrease costs compared with usual care.[6] Group medical clinic interventions appear to improve hemoglobin A1c (HbA1c) and blood pressure (BP) compared with usual care among patients with diabetes.[7] However, the effect of group medical clinics on lipids is less clear. Eight studies have reported the impact of group medical clinics on either total cholesterol or low-density lipoprotein cholesterol (LDL-C),[8-15] with varying treatment effects and no statistically significant improvement relative to usual care on meta-analysis.[7]

CLINICAL SIGNIFICANCE

- Among patients with uncontrolled diabetes and hypertension, a group medical clinic intervention reduced total and low-density lipoprotein cholesterol versus usual care.
- Between study baseline and end, intensification of cholesterol-lowering medications occurred at a greater rate among group medical clinic patients versus usual care.
- Compared with usual care, group medical clinics appear to manage cholesterol more effectively among patients with diabetes and hypertension, possibly by enhancing treatment intensification.

In order better to understand the value of group medical clinics as a strategy for improving lipid control among patients with diabetes and hypertension, we conducted a prespecified secondary analysis of a randomized controlled trial of a group medical clinic intervention,[16] in which we examined differences in lipid parameters between group medical clinics and usual care. We also evaluated a potential mechanism by which group medical clinics may affect lipid outcomes through a post hoc analysis of changes in cholesterol-lowering medication intensification with group medical clinics versus usual care during the study.

METHODS

Population and Study Design

This prespecified secondary analysis (ClinicalTrials.gov NCT00286741) evaluates a trial of a group medical clinic intervention versus usual care among 239 patients at 2 Veterans Affairs Medical Centers.[16] Patients were enrolled in primary care at either center, and had treated but poorly controlled type 2 diabetes (HbA1c $\geq$7.5%) and hypertension (systolic BP $\geq$140 mm Hg or diastolic BP $\geq$90 mm Hg). Suboptimal lipid control was not a criterion for study entry. Patients were excluded for receipt of dual primary care outside their center, receipt of endocrinology care during the prior 6 months, recent psychiatric hospitalization, cognitive impairment, or reduced life expectancy from chronic illness. Both centers' institutional review boards approved the protocol.

Patients were randomized to group medical clinics or usual care in a 5:4 ratio (to account for clustering of group medical clinic patients), and allocation was concealed. Randomization was stratified by site, baseline HbA1c ($\geq$ vs <9.0%), and baseline systolic BP ($\geq$ vs <150 mm Hg). The trial's duration was 12 months, with assessments at study baseline, midpoint, and end. The trial's primary analysis showed that group medical clinics improved BP but not HbA1c relative to usual care, although a secondary analysis suggested that group medical clinics did improve HbA1c compared with usual care for patients on complex insulin regimens at baseline.[17]

Description of Group Medical Clinic Intervention

This group medical clinic intervention has been described in detail.[16] Each group included 7-9 patients and a care team comprising a general internist, a pharmacist, and a nurse or certified diabetes educator. Groups met every 2 months for 12 months (7 120-minute sessions over 12 months). Within groups, patients and care teams remained consistent across sessions.

Each 120-minute group medical clinic session included 3 phases. Phase 1 (30 minutes) focused on patient intake and data collection. On presentation, each patient completed a brief triage form, had a BP check, and turned in any recent self-monitored blood glucose or BP data. Intake also allowed time for informal conversation among group members. Phase 2 (30-45 minutes) consisted of an interactive group education class led by the assigned educator. Concurrent with the education class, the internist or clinical pharmacist reviewed patients' self-monitored data, medical records, and laboratory values, and developed a plan to improve cardiovascular disease risk-factor control (including lipids). In phase 3 (30-45 minutes), the clinical pharmacist or internist met individually with patients for 5-10 minutes each to gather additional information about issues that could affect treatment decisions (eg, medication adherence, adverse drug events). A final treatment plan was determined, and patients received an updated medication list with instructions regarding any changes. Of note, patients' primary care providers could decline suggested medication changes, and group medical clinic patients continued to receive their usual primary care alongside the intervention.

Lipid goals were discussed with group medical clinic patients during the phase-3 individual sessions, and lipid medications were adjusted as clinically indicated. Although lifestyle modification measures explicitly targeting lipids were not addressed during group medical clinics, patients received extensive education in related areas, including medication adherence, diet, and exercise (described in detail elsewhere).[16]

Usual Care

Patients randomized to usual care continued to receive primary care management of lipids and other cardiovascular disease risk factors, but received no active intervention.