

Comparison of a pharmacist-managed lipid clinic: In-person versus telephone

Nicole M. Dolder and Christian R. Dolder

Abstract

Objective: To compare the effectiveness of an in-person versus telephone-based pharmacist-managed lipid clinic.

Methods: Retrospective examination of a pharmacist-managed lipid clinic conducted at a Veterans Affairs medical center between September 2005 and March 2008. The clinical pharmacist educated, monitored, recommended nonpharmacologic treatment, and prescribed lipid-lowering medications using an in-person or telephone-based clinic style. The primary outcomes were to compare the two clinic styles on the percent of patients who reached their low-density lipoprotein (LDL) cholesterol goal and the absolute percent of LDL cholesterol reduction.

Results: 157 patients with coronary artery disease or its risk equivalent were enrolled in the pharmacist-managed lipid clinic. Overall, patients experienced a mean 27% reduction in LDL cholesterol levels from baseline, and 76% reached their LDL cholesterol goal. No significant differences in the percent of patients reaching their LDL cholesterol goal or absolute percent reduction in LDL cholesterol levels were found between the in-person and phone-based clinics. A trend toward phone clinic patients achieving their goal LDL cholesterol levels more quickly was noted.

Conclusion: Both in-person and phone-based pharmacist-managed lipid clinics offer effective methods to improve the cholesterol levels of patients. Phone-based clinics may offer more advantages in efficiency for pharmacists and their patients and the potential to deliver care in a wider variety of pharmacy settings.

Keywords: Pharmacists, dyslipidemias, pharmacotherapy, telephone interventions, outpatient setting.

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Cardiovascular disease (CVD) is the leading cause of mortality for both men and women in the United States.¹ It is associated with an estimated 6 million hospitalizations and 81 million physician office visits annually and, in 2008, had an overall cost of \$448 billion.^{1,2} CVD is largely preventable. Treating dyslipidemia, especially lowering low-density lipoprotein (LDL) cholesterol, is a well-accepted method for decreasing the risk of CVD. Despite the negative outcomes associated with CVD and the known benefits of treating dyslipidemia, more than 100 million Americans are estimated to have total cholesterol concentrations of at least 200 mg/dL.²

Pharmacist-managed lipid clinics represent a method to increase patient access to cardiovascular care and to treat cholesterol levels to goal. A number of previous publications have documented the acceptance of pharmacist-managed lipid clinics by patients^{3,4} and the effectiveness of the clinics at lowering LDL cholesterol and other components of cholesterol.^{3,5-9} A variety of pharmacist interventions were described in these publications, and the clinic style that offers the most effective and efficient treatment remains unclear. One unresolved issue relates to lipid clinics that are primarily conducted in-person or over the telephone.

Objective

The purpose of this investigation was to compare the effectiveness of an in-person versus telephone-based pharmacist-managed lipid clinic conducted by a single pharmacist.

Methods

In September 2005, the W.G. "Bill" Hefner Veterans Affairs Medical Center implemented once-weekly pharmacist-managed lipid clinics in response to a large number of veterans not being at their LDL cholesterol goal. As part of routine care, veterans were assigned to an ambulatory care team that consisted of approximately four to six physicians or physician assistants and one clinical pharmacist. The medical center provided a list of high-risk patients (i.e., coronary artery disease [CAD], CAD risk equivalent) above their LDL cholesterol goal to each clinical pharmacist. Before initiating the lipid

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clinic, each pharmacist completed specific training in lipid management that included a certificate program.

This investigation retrospectively examines the outcomes from one of the six pharmacist-managed lipid clinics. The pharmacist-managed lipid clinics initially used in-person appointments, but after approximately 1 year, the clinics, following directions from the pharmacy department, were modified entirely to telephone appointments. During a 2-year period, the clinical pharmacist enrolled veterans into the clinic and educated, monitored, recommended nonpharmacologic treatment, and prescribed lipid-lowering medications. At the initial visit, patients were educated about dyslipidemia, cardiovascular risk, and the benefits of treatment. Therapy goals were established and treatment plans implemented. The same dyslipidemia-related literature was provided at all initial appointments (in-person or via mail as appropriate). Follow-up was generally conducted every 6 to 12 weeks and consisted of goal review, assessment of laboratory results, and discussion of lifestyle modifications and pharmacologic treatment. Treatment plans were modified as appropriate. Prescribing followed formulary guidelines with the ability to use nonformulary lipid agents upon approval. Initial appointments were approximately 30 minutes and follow-up appointments generally 15 minutes in duration, regardless of clinic type. Computerized scheduling software was used to manage patient care-related activities. Patients were discharged back to their primary care provider upon reaching their LDL cholesterol goal or after at least two consecutive absences from the clinic or two consecutive unreturned calls with the phone clinic.

The primary outcomes of this investigation were to compare the two clinic styles on the percent of patients who reached their National Cholesterol Education Program–based LDL cholesterol goal and the absolute percent of LDL cholesterol reduction.¹⁰ The secondary outcome was to compare the two clinic styles on time (in weeks) that patients were enrolled in the lipid clinic. Other lipid panel components were not analyzed because the purpose of the lipid clinic was to address LDL cholesterol. A variety of baseline demographics were col-

lected, and the two groups were compared on these variables. Chi-square analysis and analysis of covariance were used for the primary and secondary outcomes. LDL cholesterol reduction was calculated by subtracting baseline LDL cholesterol readings from LDL cholesterol at the time of discharge. SPSS version 15.0 (SPSS, Chicago) was used for all data analyses. All patients with at least one set of postbaseline lipid results were included in the inferential analyses, including patients discharged prematurely because of nonadherence. A total of 13 patients were excluded from statistical analysis as a result of lack of follow-up data (7 in the in-person clinic and 6 in the phone clinic). All tests were two tailed with an alpha level less than 0.05. The study sample had at least 80% power to detect a 25% difference in LDL cholesterol reduction. This study was approved by the medical center's institutional review board.

Results

A total of 157 high-risk patients were enrolled in the pharmacist-managed lipid clinic. The baseline characteristics of these primarily middle-aged and older white male veterans are compared in Table 1. Overall, patients required a mean LDL cholesterol reduction of 28% to reach their LDL cholesterol goal levels. All patients had an LDL cholesterol goal of less than 100 mg/dL. Nearly all patients were receiving lipid-lowering medications at the time of enrollment or had been on therapy in the past. The two groups were similar on a number of variables; however, they differed on age and presence of diabetes. These parameters became covariates when analyzing the outcomes. Of the initial 157 patients, 40 (25%) were discharged from the clinic before reaching their LDL cholesterol goal. No differences in early discharges existed between the two groups.

Table 2 summarizes and compares groups on baseline medications, discharge medications, and medication interventions. No significant differences were found between the two groups on these medication parameters. In terms of the primary outcome, 74% of in-person clinic patients and 78% of phone clinic patients achieved their LDL cholesterol goal

Table 1. Baseline characteristics of veterans participating in pharmacist-managed lipid clinic

	In-person clinic	Phone clinic	Statistical analysis
n	78	79	
Age (years), mean ± SD ^a	61.0 ± 9	65.2 ± 9	$t = -2.90$, $df = 155$, $P = 0.004$
Men (%)	98.7	98.7	Fisher's exact = 1.00
Ethnicity (% white)	80.8	79.2	$\chi^2 = 0.058$, $df = 1$, $P = 0.81$
Body mass index (kg/m ²), mean ± SD	34.3 ± 19.5	31.4 ± 6.8	$t = 0.98$, $df = 108$, $P = 0.33$
Diabetes (%) ^a	76.9	46.8	$\chi^2 = 15.05$, $df = 1$, $P < 0.001$
TLCs recommended at enrollment (%)	93.2	85.7	Fisher's exact = 0.29
Tobacco use (%)	37.5	31.4	$\chi^2 = 0.49$, $df = 1$, $P = 0.48$
LDL at enrollment (mg/dL), mean ± SD	143.4 ± 30.9	134.9 ± 23.8	$t = 1.92$, $df = 153$, $P = 0.06$
HDL at enrollment (mg/dL), mean ± SD	40.0 ± 16.0	38.8 ± 9.4	$t = 0.56$, $df = 153$, $P = 0.58$
TG at enrollment (mg/dL), mean ± SD	205.5 ± 199.6	179.8 ± 103.3	$t = 1.02$, $df = 153$, $P = 0.31$
TC at enrollment (mg/dL), mean ± SD	222.6 ± 55.0	208.5 ± 34.5	$t = 1.92$, $df = 153$, $P = 0.06$

Abbreviations used: HDL, high-density lipoprotein; LDL, low-density lipoprotein; TC, total cholesterol; TG, triglycerides; TLC, therapeutic lifestyle change.

^aEmployed as covariates when analyzing LDL cholesterol reduction between groups.

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