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PRACTICE INSIGHTS

The Value of Pharmacist Involvement in a Point-of-Care Service, Walk-In Lipid Screening Program

Mahtab Jafari, Pharm.D., Mona Masih, Pharm.D., and Jane F. Emerson, M.D.

The leading cause of death in the United States is heart disease. Because an elevated serum cholesterol level is an independent risk factor for development of coronary heart disease (CHD), individuals older than 20 years of age are advised to have their cholesterol level checked every 5 years. Walk-in screening programs are becoming popular as a method of health care delivery. The program at the University of California–Irvine Medical Center administers point-of-care, low-cost lipid profile testing, directly involves patients in their own care, and provides individualized education to patients regarding cardiovascular risk reduction. A total of 301 patients participated in the program between August 1998 and September 2000. Fifty percent of them (150 patients) required intervention; 34% of these (52 patients) were previously undiagnosed. Their mean age was 57 ± 13 years; 35% were women, 53% had two or more cardiac risk factors, and 5% had CHD. Based on the National Cholesterol Education Program guidelines, 29% had low-density lipoprotein levels above target, 23% had triglyceride levels higher than recommended, and 21% had high-density lipoprotein levels below target. It is our hope that our successful experience with the program will encourage pharmacists to develop similar programs.

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Coronary heart disease (CHD) is the leading cause of disability and death in the United States. Approximately 14 million adult Americans have a history of CHD, and approximately 500,000 people in the U.S. die each year from CHD.¹ Dyslipidemia is a major risk factor for the development of CHD, and data from several studies²⁻⁷ show that an elevated low-density lipoprotein cholesterol (LDL) level is a risk factor for CHD. The benefit of cholesterol reduction is confirmed not only in the secondary prevention of CHD, aimed at patients with high cholesterol levels and known coronary artery disease, but

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also in the primary prevention of CHD, aimed at those with high cholesterol levels but no history of CHD. Several trials demonstrated the clinical benefit of lowering LDL in primary prevention of CHD.^{3, 4-6} Secondary prevention trials^{2, 7} have confirmed that cholesterol reduction in patients with established CHD is required to decrease risk for the development of future cardiac events.

Management of Dyslipidemia

Data from these studies indicate a need for primary and secondary prevention of heart disease and strategies to manage patients with modifiable risk factors such as dyslipidemia. In an effort to manage patients with dyslipidemia appropriately, the National Committee for Quality Assurance (NCQA) established specific Health Plan Employer and Data Information Set (HEDIS) performance indicators.⁸ These

mandated standards require managed care organizations to report the percentage of patients with CHD who achieve an LDL level of 130 mg/dl or less in the first 60–365 days after discharge from the hospital with a diagnosis of coronary disease. To improve secondary prevention outcomes, organizations accredited by the NCQA must comply with HEDIS guidelines for management of dyslipidemia.⁸

In spite of these latest requirements by accrediting bodies such as the NCQA, many patients with elevated serum cholesterol levels and several risk factors still are not receiving adequate treatment. For example, one multicenter study showed that 29% of patients with elevated LDL levels were not counseled on dietary modification or treated with a lipid-lowering agent.⁹ Another study found that in 52 hospitals, of 5620 patients who had experienced a myocardial infarction, only 41.8% were counseled on dietary modification and only 21% received drug therapy.¹⁰ These examples indicate the need to improve the care provided to patients with dyslipidemia.

Management of dyslipidemia is multifactorial and involves several approaches. The first step after identifying patients with elevated serum cholesterol is to distinguish between primary and secondary prevention. In primary prevention, directed at patients who have not had a coronary event, lifestyle modification should be managed for 3 months, followed by drug therapy, if necessary. Then, according to the National Cholesterol Education Program Adult Treatment Panel III (NCEP III), those with two or more risk factors should aim for an LDL level less than 130 mg/dl. Those with less than two risk factors should aim for an LDL level less than 160 mg/dl.¹¹

Since patients requiring secondary prevention have established coronary artery disease, they should be managed aggressively with drug therapy in addition to lifestyle modification. The NCEP III recommendations suggest that these patients have an LDL level less than 100 mg/dl. Furthermore, NCEP III suggests that patients with diabetes have the same risk as patients with established CHD. Therefore, LDL levels of patients with diabetes also should be 100 mg/dl or less.¹¹ All patients should be educated on modifiable risk factors such as smoking, obesity, diet, and exercise. Nonmodifiable risk factors, such as family history of heart disease, should be assessed. A thorough patient history will allow pharmacists to set goals for individual patients

based on their specific risk factors.

Pharmacist Involvement

Since pharmacists are highly accessible and are familiar with drug and disease state management, they are in an ideal position to screen and manage patients with dyslipidemia through lipid screening programs.^{12–14} One study showed that a pharmacist's assessment of risk factors associated with CHD and therapeutic recommendations had a significant effect on patient outcomes.¹ Of the 317 individuals assessed, 19% required secondary prevention and had an average of 2.7 risk factors each. Patients requiring primary prevention had an average of 3 risk factors each. Data indicated that, in the secondary prevention group, after pharmacist intervention, LDL levels decreased by 26% ($p < 0.0001$) and high-density lipoprotein cholesterol (HDL) levels increased by 19% ($p < 0.0001$). In the primary prevention group, LDL decreased by 27% ($p < 0.0001$) and HDL increased by 12% ($p = 0.009$). The number of patients who reached the NCEP goal LDL level of less than 100 mg/dl increased from 6% to 27% in the secondary prevention group and from 20% to 51% in the primary prevention group.

Another study¹⁰ found that a multidisciplinary team with a clinical pharmacist, nurse, and dietitian was more effective than traditional physician-based care in treating patients with dyslipidemia in an outpatient setting. Of 122 patients enrolled, those managed by the multidisciplinary team were 4 times more likely to reach the NCEP goal ($p < 0.001$).

Methods

Walk-in screening programs are becoming a popular method of health care delivery. The Lipid Screening Program at the University of California–Irvine Medical Center was established to provide point-of-care, low-cost lipid profile testing; directly involve patients in their own care; and provide individualized education to patients regarding cardiovascular risk reduction.

The program was developed as a collaborative effort between a clinical pharmacist and a clinical pathologist. The program is publicized in the community, and the service is offered at two outpatient laboratories. Patients are self-referred and pay \$20 for the service. A fingerstick blood test is used to evaluate the patient's lipid panel (triglyceride, LDL, HDL, and total cholesterol levels). Analysis is done with the Cholestech

L.D.X. System (Cholestech, Hayward, CA)—a diagnostic blood analyzer that gives reliable lipid values in approximately 5 minutes, meeting the accuracy and precision guidelines established by the NCEP.¹⁵ For patients whose values fall outside the acceptable range, a capillary blood sample is obtained and analyzed using a Beckman LX20 automated chemistry analyzer (Beckman, Brea, CA) and electrophoresis by a clinical laboratory that meets the standards set by the Centers for Disease Control and Prevention. While the blood is being analyzed, the patient completes a brief questionnaire designed to assess cardiovascular risk factors. It solicits information about lifestyle (smoking, diet, exercise habits), family history, and concurrent disease states (diabetes, hypertension, etc.). The pharmacist reviews the lipid panel and questionnaire with the patient and provides a brief consultation. Patients are encouraged to take specific recommendations to their primary care providers for additional intervention, if necessary. Patients also are given the option to be referred to a cholesterol clinic. Finally, the clinical pharmacist and clinical pathologist send follow-up letters with results and recommendations to all participants.

Results

A total of 301 patients participated in the program between August 1998 and September 2000. Fifty percent of all patients (150 patients) required intervention; 34% of these (52 patients) were previously undiagnosed. Their mean age was 57 ± 13 years; 35% (104 patients) were women, 53% (161 patients) had two or more cardiac risk factors, and 5% (15 patients) had CHD. Based on NCEP guidelines, 29% (87 patients) had LDL levels above target, 23% (69 patients) had triglyceride levels higher than recommended, and 21% (62 patients) had HDL levels below target.

Overall, patients were satisfied with the program. During consultations with the pharmacist, patients stated that immediate consultation with a clinician was an important factor in choosing to participate in the program. In addition, the consultations encouraged noncompliant patients with known lipid disorders to return to their physicians and restart their lipid-lowering drugs. Some patients reported that self-monitoring of lipid levels helped them to remain compliant with their treatment plan.

Discussion

Experts recommend that persons older than 20 years of age have their cholesterol levels checked every 5 years. Because CHD is one of the leading causes of death in the U.S., an intense effort must be made to identify patients at risk. Our walk-in lipid screening program is one example of pharmacists' direct involvement in patient care. Such a program allows pharmacists to subjectively and objectively identify a patient's risk for development of heart disease. Direct patient contact allows pharmacists to improve a patient's understanding of the implications of an elevated cholesterol level and ways to decrease it. Therefore, pharmacists can help to decrease mortality from heart disease by identifying and educating those at risk. Furthermore, the general population can take advantage of our pharmacist-managed lipid screening program without a physician referral.

Based on our experience, we recommend the following steps for establishing a lipid screening program:

1. Assess your practice setting and patient population to determine need.
2. Explore options for possible funding.
3. Identify collaborating physicians.
4. Obtain approval from pertinent committees, such as a pharmacy and therapeutics committee.
5. Publicize the program to recruit patients (local newspapers, newsletters, outpatient clinics, and physicians).
6. Obtain institutional review board approval to analyze data and publish results.
7. Develop a database.

Summary

Our walk-in lipid screening program is just one example of how pharmacists can establish new programs and be more involved in direct patient care. By using this model, other programs can be implemented in various practice settings to screen patients for other conditions such as diabetes and hypertension.

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