A Comparison of Hypercholesterolemia Management in the Secondary Prevention of Coronary Heart Disease by Payor Types: Fee-For-Service, Medicare, and Managed Care Organizations

Dean A. Bramlet, Cheryl A. Stoukides, Alan F. Kaul, and L. Daphne Hsiao

ABSTRACT: The objective was to compare practice patterns of hypercholesterolemia management among payor types and to compare treatment of patients by gender and age in two practice settings. A retrospective study used chart review of patients to assess practice patterns among fee-for-service (FFS), Medicare, restricted (R), and nonrestricted (NR) managed care plans.

The medical records of 928 patients treated in lipid clinics and nonlipid clinics in a private cardiology practice were randomly selected from a pool of 4,314 patients with International Classification of Diseases, Ninth Revision, Clinical Modification codes 410-414 (ischemic heart disease). Outcomes measures included documentation of low-density lipoprotein cholesterol (LDL-C), initiation of lipid-lowering pharmacotherapy, the achievement of the National Cholesterol Education Program goal of LDL-C<100mg/dL, and the measurements of LDL-C, total cholesterol, and high-density lipoprotein cholesterol.

In the nonlipid clinic (NLC) setting, LDL-C was documented more often in patients in the NR (81%), FFS (73%), and Medicare (65%) payor groups than in the R payor group (31%) (p=0.001). More patients were on lipid-lowering drug therapy in the NR (66%), FFS (63%), and Medicare (54%) groups than those in the R payor group (28%) (p=0.001). Among patients with a documented LDL-C, more patients in the NR (41%), FFS (29%), and Medicare (33%) groups achieved the goal of LDL-C<100mg/dL than in R group (14%), (p=0.021). In the NLC setting, consistent with other published studies, women and the elderly received less-aggressive care than their male and younger counterparts. In the lipid clinic (LC) setting, this difference was corrected, with all patients receiving improved care.

We conclude that managed care payors that allow access to specialty lipid clinics, lipid screening, and more potent pharmacotherapy appear to compare favorably to FFS and Medicare in lipid management. However, managed care organizations (MCOs) that restrict such access may present barriers to implementing best-practice guidelines, resulting in suboptimal care and potentially avoidable health care expenses. Once in the LC setting, patients of all payor groups, including women and the elderly, received equivalent care. MCOs need to fully evaluate the implications of provider restrictions on access in treating coronary heart disease (CHD) patients with hyperlipidemia, especially as it affects access to comprehensive lipid management programs, including more efficacious pharmacotherapy and dietary counseling needed by these high-risk patients.

KEY WORDS: Access, Coronary heart disease, Fee-For-Service, High-density lipoprotein cholesterol, Low-density lipoprotein cholesterol, Total cholesterol, Managed care, Medicare, Restrictions

J Managed Care Pharm 1998: 483-87

The number of covered lives in managed care plans increases annually, with an estimated 53 million Americans enrolled in health maintenance organizations (HMOs) at the beginning of 1996.\textsuperscript{1} With escalating medical expenses, increasing numbers of HMOs employ financial risk-sharing agreements between payors and providers. Health care providers must manage limited resources, consider cost implications among therapeutic options, and deliver a higher quality of care.\textsuperscript{2}

In 1998, cardiovascular disease and stroke will cost $274 billion in the United States.\textsuperscript{3} The application of clinical practice guidelines to coronary heart disease (CHD) in managed care plans offers an opportunity to improve clinical and financial outcomes in the evaluation of resource utilization and allocation. High cholesterol levels often are associated with increasing risk of developing or worsening CHD and its associated morbidity and mortality. Although aggressive approaches have been advocated to both detect and treat hypercholesterolemia, practitioner compliance to established guidelines is generally poor and varies with the clinic type.\textsuperscript{4-5} Evidence shows that a greater number of patients treated in the lipid clinic, compared to general medical programs, have documented low-density lipoprotein cholesterol (LDL-C) measurements and attained the National Cholesterol Education Program (NCEP II) goal.\textsuperscript{6-9}
A Comparison of Hypercholesterolemia Management in the Secondary Prevention of Coronary Heart Disease by Payor Types: Fee-For-Service, Medicare, and Managed Care Organizations

Table 1: Overall Comparison: Fee-For-Service, Medicare, Nonrestricted, and Restricted Managed Care Payors

<table>
<thead>
<tr>
<th></th>
<th>FFS</th>
<th>Medicare</th>
<th>NR</th>
<th>R</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=</td>
<td>193</td>
<td>500</td>
<td>98</td>
<td>137</td>
<td></td>
</tr>
<tr>
<td>LDL-C documented</td>
<td>73%</td>
<td>65%</td>
<td>81%</td>
<td>31%</td>
<td>0.001</td>
</tr>
<tr>
<td>On drug therapy</td>
<td>63%</td>
<td>54%</td>
<td>66%</td>
<td>28%</td>
<td>0.001</td>
</tr>
<tr>
<td>n=</td>
<td>140</td>
<td>325</td>
<td>79</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>At NCEP II goal*</td>
<td>29%</td>
<td>33%</td>
<td>41%</td>
<td>14%</td>
<td>0.021</td>
</tr>
<tr>
<td>Mean LDL-C (mg/dL)*</td>
<td>119</td>
<td>116</td>
<td>122</td>
<td>145</td>
<td></td>
</tr>
</tbody>
</table>

FFS=fee-for-service
NR=nonrestricted managed care payor
R=restricted managed care payor
*for those patients with a documented LDL-C level

The management of hypercholesterolemia involves a combination of preventive strategies including exercise, dietary modification, smoking cessation, weight loss, and/or drug therapy for patients at risk or with established CHD. These strategies have been encouraged to limit inappropriate overuse of resources in fee-for-service plans and under-utilization in restricted managed care programs. In addition, educational intervention programs targeting key prescribers can help promulgate and reinforce these preventive interventions. Educational programs provide a significant opportunity to demonstrate cost savings by reducing over-utilization of hospitalization associated with hypercholesterolemia and its complications. More consistent practice patterns for the management of hypercholesterolemia by all health care providers should result in improving clinical outcomes and demonstrate better value for health care expenses.

Cardiovascular disease is a leading cause of death in the elderly and the most frequent cause of death in women in the U.S. Lipid-lowering therapy reduces cardiovascular morbidity and mortality and is well tolerated in both women and the elderly. Recent studies support therapy for high cholesterol in women and the elderly; however, these populations remain under-diagnosed and under-treated.

In this study, we analyzed practice patterns in diagnosing and managing elevated LDL-C among payor types, including fee-for-service (FFS), Medicare, nonrestricted (NR), and restricted (R) managed care. We evaluated the effects of restrictions on access to a more potent lipid-lowering agent and to a lipid clinic. We also assessed the extent to which practice patterns among managed care plans would differ by age and sex.

METHODS

Study Population and Patient Identification

This study used a quality assurance process developed by ACCESS Medical Group, Ltd., and Merck Human Health to collect and examine practice patterns for treating patients with hypercholesterolemia. The medical records of 928 patients with identified International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes 410-414 (ischemic heart disease) as the primary diagnosis were randomly selected from a pool of 4,314 patients referred to a private cardiology practice in St. Petersburg, Florida. An experienced utilization review nurse identified and reviewed medical records for lipid-management care between January 1995 and June 1996.

The health care market for this study (Tampa-St. Petersburg/Clearwater, Florida, Metropolitan Statistical Area) is classified as a large market, with 15 HMOs and a total HMO enrollment of 865,652. The market is ranked 10th nationally in percentage of HMO penetration (34.6%) and reported the largest total gain in HMO enrollment (368,456 or 11.5%) from January 1, 1995, to January 1, 1996, in the South Atlantic Metropolitan area. Within the cardiology practice, four cardiologists practiced in the lipid clinic (LC) and five did not.

Payor Groups

Payors were classified into four groups. The R managed care group had a closed formulary containing only the least potent statin (i.e., fluvastatin); a contract limited to cardiology consultation; and approved access to the preventive services offered by the lipid clinic only on an exception basis. The NR managed care group was characterized by having an open formulary or one that included a more potent statin (i.e., simvastatin). The FFS group had an open formulary and professional services reimbursed at billed or negotiated rates. The Medicare group reimbursed all services at a discounted FFS, and medications were generally covered by a secondary insurer or by FFS.

Data Collection

Patient demographic data and lipid parameters were abstracted from medical claims data and patient medical records.
Demographic data included sex, age, health care carrier, affiliation or third-party plan, use of lipid-lowering therapy, existence of comorbidities, and management within the lipid or nonlipid clinic setting. Lipid parameters assessed included most recent LDL-C, total cholesterol (TC), and high-density lipoprotein cholesterol (HDL-C) levels.

Statistical Analysis
Data were analyzed using SAS for Windows Software, (Version 6.11, SAS Institute, Inc., Cary, North Carolina). Analyses consisted of descriptive statistics to summarize the study cohort and prescriptive statistics, including Chi-square tests for all categorical variables and Students t-tests and ANOVA for continuous variables.

RESULTS
Payor Comparison
Among 928 patients, 235 were covered by managed care payors, including 98 patients in the NR group and 137 in the R group. The remaining patients were in the FFS (n=193) and Medicare (n=500) groups.

As shown in Table 1, more than two-thirds of patients in the NR (81%), FFS (73%), and Medicare (65%) groups had documented LDL-C levels, as compared to 31% of those in the R group (p<0.001). A greater percentage of patients in the NR (66%), FFS (63%), and Medicare (54%) groups were on lipid-lowering drug therapy than those in the R group (28%) (p<0.001). For those patients with a documented LDL-C, differences were noted among the groups in achieving the NCEP II goal of LDL-C<100 mg/dL (41%, 29%, 33%, and 14%, respectively) (p<0.021). In addition, mean LDL-C (mg/dL) for those patients with documented levels was relatively lower in FFS, Medicare, and NR groups than that for those in the R group (119, 116, 122, and 145, respectively).

Subgroup Analysis of All Payor Groups by Practice Setting
A total of 152 patient records were abstracted from the LC setting, including 41 in the FFS group, 94 in Medicare, 11 in the NR group, and six in the R group. For patients in all payor groups seen within the LC setting, there were no observed differences in initiating drug therapy or in the LDL-C goal. A slightly smaller percentage of patients in the R group had documented LDL-C than in the other groups. In contrast, in the NLC setting (Table 2), LDL-C was documented more often in the NR (78%), FFS (65%), and Medicare (57%) groups than in the R group (29%) (p=0.001). More patients in the NR, FFS, and Medicare groups were on lipid-lowering drug therapy (63%, 56%, 45%) than in the R group (26%) (p=0.001), and more patients in the NR, FFS, and Medicare groups were at NCEP II goal of LDL-C<100 mg/dL (40%, 26%, 29%) than in the R groups (8%) (p<0.006). Among those patients with documented LDL-C values, mean LDL-C (mg/dL) levels were comparatively lower in the FFS, Medicare, and NR groups than in the R group (124, 120, 125, and 150 respectively).

Subgroup Analysis of Managed Care Payors by Sex; LC vs. NLC Setting
In the LC setting, no sex differences were observed in any of the noted parameters among those in managed care plans. However, in the NLC setting (see Table 3), LDL-C was documented less often in female patients (36% vs. 55%) (p=0.023), and fewer women were at NCEP II goal (13% vs. 33%) (p=0.051). There was no difference in percentages of female and male patients on drug therapy. The mean LDL-C value for those patients with a documented LDL-C value was 20% higher in women than men (158 mg/dL vs. 127 mg/dL).

Subgroup Analysis of Managed Care Payors by Age; LC vs. NLC Setting
An evaluation of MC plans in the LC setting revealed no differences between the elderly (age 65 or older) and young (age <65) in LDL-C documentation, patients on drug therapy, and patients at NCEP II goal. In the NLC setting (see Table 4), however, elderly patients had a lower percentage of LDL-C

Table 3. Subgroup Analysis: Managed Care by Sex—Nonlipid Clinic Setting

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>158</td>
<td>127</td>
<td></td>
</tr>
<tr>
<td>LDL-C documented</td>
<td>36%</td>
<td>55%</td>
<td>0.023</td>
</tr>
<tr>
<td>On drug therapy</td>
<td>33%</td>
<td>45%</td>
<td>NS</td>
</tr>
<tr>
<td>n</td>
<td>24</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>At NCEP II goal*</td>
<td>13%</td>
<td>33%</td>
<td>0.051</td>
</tr>
<tr>
<td>Mean LDL-C (mg/dL)*</td>
<td>158</td>
<td>127</td>
<td></td>
</tr>
</tbody>
</table>

*for those patients with a documented LDL-C level

Table 4. Subgroup Analysis: Managed Care by Age—Nonlipid Clinic Setting

<table>
<thead>
<tr>
<th></th>
<th>≥65 years</th>
<th>&lt;65 years</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>131</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>LDL-C documented</td>
<td>27%</td>
<td>81%</td>
<td>0.001</td>
</tr>
<tr>
<td>On drug therapy</td>
<td>21%</td>
<td>71%</td>
<td>0.001</td>
</tr>
<tr>
<td>n</td>
<td>36</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>At NCEP II goal*</td>
<td>14%</td>
<td>36%</td>
<td>0.018</td>
</tr>
<tr>
<td>Mean LDL-C (mg/dL)*</td>
<td>145</td>
<td>128</td>
<td></td>
</tr>
</tbody>
</table>

*for those patients with a documented LDL-C level
documentation (27% vs. 81%) (p=0.001), and fewer were on drug therapy (21% vs. 71%) (p=0.001) and at NCEP II goal (14% vs. 36%) (p=0.018). Among patients with documented LDL-C values, the average of LDL-C levels was 13% higher in the elderly (145 mg/dL vs. 128 mg/dL).

Subgroup Analysis of All Payor Groups: Mean LDL-C, HDL-C, and TC (mg/dL)

Among those patients with documented LDL-C, mean LDL-C and total cholesterol were lower in Medicare, FFS, and NR groups than in the R group (see Table 5). Mean HDL-C values were comparable among the payors. Mean lipid profiles reported by clinic type are summarized in Table 6. Mean LDL-C, HDL-C, and total cholesterol levels were comparable in the LC setting. In the NLC setting, LDL-C levels and TC were lower in the Medicare, FFS, and NR groups than in group R, while mean HDL-C levels were comparable among all payors.

DISCUSSION

In this study, lower mean LDL-C levels were observed in those patients within the Medicare, FFS, and NR populations. The NR group used referrals to the LC and provided formulary access to a more potent HMG-Co A reductase inhibitor, simvastatin. The NR payors reimbursed cardiologists for providing services on a discounted FFS basis. Patients in the R group who had restricted access to the LC and more potent statin had lower rates of LDL-C documentation and higher mean LDL-C. In addition, this R network limited most referrals to a cardiology consultation only. Some preventive cardiology services, such as lipid management programs, were not included in the provider agreement. However, they were available outside the contract if the primary care provider requested.

In addition to the limitation of referrals to the LC, the R group’s practice patterns also were affected by its closed formulary. In this instance, the formulary management policy of limiting the choice of lipid-lowering drugs to only the least-potent statins (e.g., fluvastatin) may have contributed to suboptimal patient lipid outcomes. In a managed care survey, 44% of cardiovascular specialists felt that managed care formularies inhibited their ability to prescribe optimal therapy. Formulary limitations and limiting access to lipid management clinics might result in a savings in pharmacy budgets, but might also unintentionally increase utilization of other health care resources, including additional physician visits and hospital admissions.

Subgroup analyses examined the effect of lipid clinics on managing cholesterol in the secondary prevention of coronary heart disease in all payor groups. In the NLC setting, differences were observed among the payor groups, as suggested in the literature. Data suggest that the NLC setting replicates the less-intensive therapy historically observed in the care of the elderly and women. In contrast, both elderly and female patients received equivalent quality care in the LC setting.

Data in this pilot retrospective study were collected from a group medical practice in the southeastern United States. Practice pattern findings cannot necessarily be applied to different geographical areas. Calculations for achieving the NCEP II goal include only those patients with a documented LDL-C value. Findings of attaining the NCEP II goal in LDL-C levels serve as a proxy but do not necessarily represent actual findings for those patients in each group without documented LDL-C levels. This study is a crossover design, and therefore the effects of clinic type and payor type on lipid management cannot be assessed. The small sample size in the LC setting is another limitation, because only six patients were included in the R group and 11 in the NR group. Patient medical record abstraction inherently contains random errors, which are difficult to account for. Further study with a larger group of managed care plans in different geographical regions is encouraged to validate their practice patterns.

CONCLUSION

Good value in health care can be achieved by preventing avoidable morbidity and hospitalizations. Managed care plans, regardless of type, that allow access to specialty lipid clinics, lipid screening, and more effective pharmacotherapy appear to compare favorably to FFS and Medicare in lipid management.
A Comparison of Hypercholesterolemia Management

However, plans that restrict such access may present barriers to implementing best-practice guidelines, resulting in suboptimal care and potentially avoidable health care expenses. All managed care plans need to fully evaluate the implications of provider restrictions on the treatment of CHD patients with hyperlipidemia, especially as it affects access to comprehensive lipid management programs, including more efficacious pharmacotherapy and dietary counseling needed by these high-risk patients.

References