Patient Characteristics and Lifestyle Recommendations in the Treatment of Gastroesophageal Reflux Disease

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BACKGROUND. The objectives of this study were to describe the patient-reported frequency with which health care providers recommend lifestyle changes to patients with GERD (gastroesophageal reflux disease) with respect to patient characteristics, eg, sex, age, body mass index, tobacco use, alcohol use, type of health insurance, and clinic location (rural vs urban).

METHODS. The study was conducted in a five-center, university-based family practice in southeastern West Virginia. The first 50 patients enrolled in a prospective quality-of-life study of patients with GERD were used as the sample population. Telephone surveys administered immediately following the diagnosis of GERD included seven specific questions on lifestyle modification that may have been recommended by primary health care providers during the clinic visit. Patient-reported data were obtained from baseline surveys.

RESULTS. Five of seven (71%) lifestyle modification recommendations were reported by less than 50% of patients as being received from health care providers. Patients aged 60 years or older were less likely to report receiving recommendations than those younger than 60 years ($P = .0002$), and patients with a body mass index greater than 30 were more likely to report receiving eating-related recommendations ($P = .047$). Heavier smokers were more likely to report receiving recommendations than lighter smokers ($P = .0001$).

CONCLUSIONS. Based on patient report, health care providers recommended lifestyle modifications to a modest percentage of patients with GERD and modified counseling for specific patient characteristics, such as age, body mass index, smoking, and alcohol consumption. Additional prospective research using physician report and observation as well as patient report, and more numerous patient cohorts, is needed.

KEY WORDS. Gastroesophageal reflux; physician-patient relations; patient education; quality of health care; physician's practice patterns; delivery of health care. *(J Fam Pract 1997; 44:266-272)*

Gastroesophageal reflux disease (GERD) is any symptomatic disorder or tissue damage resulting from recurrent episodes of reflux (a retrograde flow of stomach or duodenal contents into the esophagus).[1-3] The human physiologic defense mechanisms to prevent gastroesophageal reflux include lower esophageal sphincter function, esophageal peristalsis, salivary and esophageal bicarbonate secretions, gastric emptying, and pyloric sphincter function.[2] In GERD, the primary pathophysiology involves lower esophageal sphincter dysfunction, such as decreased pressure exertion, abnormal responses to food, or spontaneous relaxations.[2,3]

Treatments for GERD are aimed at enhancing the body's defense mechanisms and eliminating symptoms.[1] Studies on several medical interventions for GERD, such as antacids, H_2-receptor antagonists, prokinetic agents, sucralfate, and proton-pump inhibitors, have been reported in the literature. As with many other chronic illnesses, however, lifestyle modifications are recommended for initial treatment of mild GERD and should be used as adjuvant therapy during medical management.[1,3] Lifestyle modifications for GERD are based on

sound physiologic principles,[4-11] but objective data demonstrating clinical efficacy, especially for mild GERD, have not been fully described. Nevertheless, many experts agree that the simplicity and minimal expense of implementing changes in lifestyle justify the use of this approach.[5] A 2- to 3-week trial of non-prescription drug therapy, ie, lifestyle modifications or over-the-counter antacid products, or both, may be recommended as appropriate initial therapy for mild GERD; however, such treatment requires high-ly motivated patients and health care providers who are effective patient educators.[12,13]

Although GERD is one of the most common dis-orders treated by today's general practitioners,[14] the use of lifestyle modifications as disease management and the rate at which prescribers deliver education on this topic have not been described. Therefore, the investigators used literature describing patient edu-cation for both disease prevention and chronic dis-eases to develop this study's methodology. In some studies, physicians cited a responsibility to educate patients,[15,16] but in others, results suggested that believing does not always translate into prac-tice.[12,13,15-22] For example, in a study of 439 patients with chronic diseases, 47% of subjects reported receiving no health education during primary care visits.[17] Lewis et al[12] concluded that both the frequen-cy and the intensity of lifestyle modification coun-seling by internal medicine specialists were defi-cient. Physicians cited several barriers that con-tribute to low rates of patient counseling, including inadequate time, deficient counseling skills, and patients' lack of interest.[22,23] Also, some health care providers may believe that counseling is ineffective, some lifestyle changes are not beneficial, and rec-ommending too many lifestyle changes may be coun-terproductive.[22] Varying perceptions and practices of physicians, as well as controversy regarding the util-ity of patient education, suggest a need for more research.[22-29]

Previously published studies have addressed the characteristics of health care providers and patients that have affected delivery of health care education, use of diagnostic procedures, and utilization of treat-ment options in various disease states, as well as pre-vention education.[30-42] Patient characteristics that appear to affect the provision of health care educa-tion have included: age (elderly patients were found to have received less counseling than young patients), sex (women received less than men), obe-sity (obese patients received more than nonobese), smoking status (paradoxically, smokers received less than nonsmokers), alcohol use (drinkers received more than nondrinkers), medical insurance (patients with Medicaid received less than those with private insurance), and rural vs urban location (those in rural practices received less than those in urban areas).

The objectives of the present study were twofold. The first was to describe health care providers' deliv-ery of specific lifestyle modification recommenda-tions as reported by patients with GERD; these included elevation of head/upper body while sleep-ing; smoking cessation; avoiding fatty, spicy, and acidic foods; avoiding coffee and alcohol; refraining from overeating; avoiding eating at bedtime; and los-ing weight, if indicated. The second objective was to evaluate the influence of patient age, sex, body mass index, alcohol consumption, cigarette smoking, type of health insurance, and geographic location of clin-ic on the provision of patient education about lifestyle modifications for GERD.

METHODS

This study was a retrospective examination of base-line data taken from the first 50 patients enrolled in a multicenter health-related quality-of-life (HRQL) GERD study (Kaplan B, Revicki DA. Comparison of patient resolution of symptoms and quality of life with the use of omeprazole vs ranitidine for the treat-ment of gastroesophageal reflux disease. Unpublished protocol, Charleston, WV, 1996). The GERD HRQL project is a prospective, open-labeled, randomized, parallel medical-effectiveness trial. Patients are randomized to receive either omepra-zole 20 mg daily or ranitidine 150 mg twice daily for clinically diagnosed GERD. Patients are being enrolled over a 6- to 12-month period and are assessed by means of an extensive health-related quality of life survey, with specific questions on gas-trointestinal symptoms. Patients are also asked whether or not their physician recommended each of seven common lifestyle modifications for GERD. These questions were added to the original protocol based on a scientific reviewer's concern that patient education of lifestyle modifications might become a confounding variable to one of the treatments being studied.

Patients completed the GERD survey at the time

they were enrolled, by telephone before leaving the clinics of the study site. Interviewing them by telephone on the premises had the effect of minimizing study costs and maximizing survey completion. Lifestyle modification questions were asked only during the baseline telephone interview. Patients and health care providers were blinded to the chosen treatment until enrollment procedures were completed. Prior to randomization, all subjects gave informed consent, as approved by the local institutional review board.

Criteria for patient enrollment included (1) a clinical diagnosis of GERD and the patient's appropriateness, in the physician's opinion, as a candidate for prescription medication therapy; (2) no prior treatment with any prescription-strength H_2-receptor antagonists or proton-pump inhibitors within 1 month of diagnosis; (3) age older than 18 years; and (4) no other contraindications to treatment with either study drug (eg, hypersensitivity to the active component or any aspect of the medication). Exclusion criteria included (1) pregnancy, lactation, or lack of a reliable contraceptive method; (2) moderate to severe renal or hepatic insufficiency; and (3) inability to comply with study procedures. The first 50 patients enrolled in the GERD HRQL study were used as this study's sample population. Health care providers received a $10.00 incentive fee for each patient who was successfully recruited. Health care providers were to be paid on a quarterly basis for those patients recruited during the prior 3 months.

For the purposes of this study, *elderly* was defined as 60 years of age or older. The cutoff of 60 years was chosen because of the statistical design used for the data analysis; ages were grouped in 10-year increments, beginning with the 20-to-29 range (at this stage of study analysis, the youngest participant was aged 20, not 18). Smokers were divided into two groups. Nonsmokers and smokers using less than 1 pack of cigarettes per day were labeled *lighter* smokers. *Heavier* smokers were those who reported smoking more than 1 pack per day. Similarly, *lighter* drinkers were defined as non-drinkers and drinkers who reported consuming alcoholic beverages a few times a month or less. *Heavier* drinkers consumed alcoholic beverages a few times per week or more. For the smoking and alcohol use questions, patients were not asked to report a specific quantity, but to respond to the statement that most closely matched their behavior (eg, for smok-

ing: fewer than 10 cigarettes per day; more than 10 cigarettes but less than 1 pack per day; at least 1 pack per day, or more than 1 pack per day; for alcohol: a few times per year on special occasions; a few times per month; a few times per week; or once or twice a day). Obesity was defined as a body mass index (BMI) greater than 30 kg/m². The upper limit of 30 was chosen because overall risks of cardiovascular disease were not available, and the use of a BMI of 27, for example, which is the upper limit used when concomitant risk factors for heart disease are present, would possibly result in an overestimation of obesity.

Data extracted from baseline surveys and enrollment records were entered into a database using Microsoft Access for Windows, version 2.0. The Statistical Analysis System (SAS Institute, Cary, NC) was used for analysis. Seven lifestyle modification suggestions were treated as dependent variables, while patient characteristics were treated as independent variables. Using SAS, the dependent variables were categorized as nominal yes or no responses. The independent variables were organized into seven nominal groups, ie, male/female; elderly/nonelderly; obese/nonobese; nondrinker plus lighter drinker/heavier drinker; nonsmoker plus lighter smoker/heavier smoker; third party insurance/Medicaid/uninsured; and urban/rural. Two-by-two chi-square (Fisher's exact test when frequency data were less than or equal to 5 units) analyses were conducted to determine the significance of patient characteristics to lifestyle modification counseling. Similarly, Wilcoxon rank-sum tests were conducted to identify tendencies within the seven nominal groups. *P* values less than .05 were considered statistically significant.

RESULTS

The mean age of the sample population was 47.2 years (range 19 to 87 years); 58% (n = 29) were female and 42% (n = 21) male. The mean BMI was 29.8 kg/m² (standard deviation 5.09). Additional patient demographics are summarized in Table 1.

In Table 2 , the rate of delivery of lifestyle modification information as reported by patients is stratified by each independent variable studied, ie, sex, age, BMI, smoking, alcohol use, insurance type, and geographic location. Six data points (1.7% of total responses) were missing, primarily because of

patient uncertainty in recall.

Sixteen patients (32%) were aged 60 years or older, and these patients were less likely to report receiving recommendations than patients younger than 60 years of age ($P = .0002$). Patients reported that five of the seven lifestyle recommendations were delivered significantly less frequently to patients aged 60 years or more. These included avoiding fatty, spicy, and acidic foods; avoiding coffee and alcohol; refraining from overeating; avoiding eating at bedtime; and losing weight if overweight.

Overall, reported frequency of counseling for patients with a BMI greater than 30 (n = 23) was no different than for patients with BMIs less than 30 (n = 27) ($P = .5079$). Patients with a BMI greater than 30 reported receiving three of the seven lifestyle recommendations, eg, stop smoking, refrain from overeating, and lose weight, more frequently than patients with a BMI less than 30.

Although not statistically significant, patients who reported drinking alcohol a few times a month or more tended to receive lifestyle modification recommendations more frequently than patients who were nondrinkers or reported drinking alcohol only on special occasions ($P = .1892$). Seventeen (34%) patients reported use of tobacco. Patients who smoked more than 10 cigarettes per day were more likely to receive lifestyle recommendations than lighter smokers or nonsmokers ($P = .0001$).

Finally, in comparing rates of patient-reported receipt of lifestyle modification recommendations, the following characteristics did not result in statistically significant differences: patient sex ($P = .7579$), type of insurance ($P = .1315$), and clinic location ($P = .8142$).

DISCUSSION

In this study describing delivery of lifestyle modification recommendations reported by 50 patients with GERD in a university-based, five-clinic family practice, overall, lifestyle counseling was found to be infrequent. This finding is consistent with previous studies of other disease states that reported low rates of patient counseling.[12,13,15,17-22]

Low counseling rates may be explained by physicians' having delivered lifestyle recommendations during previous patient encounters; nevertheless, it has been suggested that lifestyle counseling may have a greater impact on patient behavior if given at

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TABLE 1

Characteristics of Patients with GERD in Study of Patient-Reported Lifestyle Modification Counseling by Health Care Providers

Characteristic	No. (%) of Patients*
Sex	
Female	29 (58)
Male	21 (42)
Age†	
≤ 60 years	34 (68)
> 60 years	16 (32)
BMI	
< 30 kg/m^2	27 (54)
≥ 30 kg/m^2	23 (46)
Smoking status†	
Heavier smoker	17 (34)
Nonsmoker or lighter smoker	33 (66)
Alcohol status	
Heavier drinker	25 (50)
Nondrinker or lighter drinker	25 (50)
Insurance	
Third party	35 (70)
Medicaid	13 (26)
Private pay	2 (4)
Clinic site	
Urban	13 (26)
Rural	37 (74)

*Percentages are based on a total of 50 patients.
†For overall frequency of recommendations, $P = .0002$ for age-related differences; $P = .0001$ for smoking-related differences.

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every physician visit.[28] Also, controversy exists regarding the overall efficacy of patient education.[24-29] As a result, health care providers may have felt time spent counseling was impractical. Certain physicians may not feel comfortable with this aspect of patient care as a result of suboptimal training.[15,23] In addition, it is possible that initial symptoms of GERD may have been self-treated with over-the-counter H_2 antagonists and antacids. Therefore, prescribers may have considered the patients recruited for the HRQL GERD study to have more advanced GERD, which was unlikely to respond to lifestyle modifications.

Another explanation for the low reported rate of counseling may be that patients reported less counseling than was actually received; however, the

TABLE 2

Frequency of Physician Lifestyle Modification Counseling for GERD as Reported by Patients vs Patient Characteristics

Patient Characteristics	Lifestyle Modification Recommendation						
	Elevate Head of Bed	Stop Smoking	Avoid Fatty, Spicy, Acidic Food	Avoid Coffee and Alcohol	Do Not Overeat	Avoid Eating at Bedtime	Lose Weight If Overweight
Sex (male vs female)	.658	.869	.737	.934	.575	.991	.737*
Age (<60 years vs ≥60 years)	.768*	.074	.005*	.0008*	.008*	.035*	.05*
Body mass index (<30 vs ≥30 kg/m²)	.724	.029	.98	.671	.047	.683	.043*
Alcohol use (non/lighter vs heavier)†	.707*	1.0*	.167*	.157*	.701*	1.0*	1.0*
Tobacco use (non/lighter vs heavier)‡	.514*	.001	.049	.001	.001*	.144	.275*
Insurance type (third party vs medicaid)	.537	.775	.394	.06	.231	.288	.624
Clinic location (rural vs urban)	.562*	.812	.648	.173	.788*	.481*	.066*

*Denotes Fisher's exact test; values were obtained using chi-square analysis; P values less than .05 demonstrate statistically significant differences within nominal groups.
†Lighter drinkers were patients who reported no drinking of alcohol or consumption of alcoholic beverages a few times per month or less; heavier drinkers reported consuming alcoholic beverages a few times per week or more.
‡Lighter smokers were patients who reported no smoking or consumption of less than 1 pack per day of cigarettes; heavier smokers reported consumption of more than 1 pack of cigarettes per day.

investigators tried to minimize such bias by obtaining baseline telephone interviews while the patient was still at the physician's office.

When data were stratified by age, patients aged 60 years or older reported receiving GERD lifestyle modification recommendations less frequently than patients younger than 60 years. This observation is consistent with previous research, and may represent differences in certain aspects of care based on patient age.[34,35] In contrast, counseling frequency was shown to be unaffected by patient sex (P = .7579), which is contrary to studies that found that sex did affect medical care.[30,36,37] For example, previous research has shown that women received fewer diagnostic and treatment procedures than men for similar disease states.[36,37]

There was no overall difference in patient-reported receipt of lifestyle modification recommendations for patients with, as compared with those with-

out, a BMI greater than or equal to 30 kg/m²; the former, however, reported receiving more eating-related suggestions, such as to refrain from overeating and to lose weight. Although not supported by the literature,[21] this observation may demonstrate that physicians modify counseling content based on overt patient characteristics such as being overweight.

Smoking cessation advice may have been more common because of the high rate of smoking in West Virginia; the state ranks 11th in the nation for smoking frequency.[43] Counseling for smoking cessation may have been more prevalent than for other lifestyle changes because of the overt nature of smoking and smoking's known potential for causing life-threatening diseases.[44] Cigarette smoking is also a well-recognized risk factor for GERD, and smoking cessation counseling is a standard of care for patients with this disorder.[1-3] In this study, heavier

smokers were more likely to receive lifestyle modification information than lighter smokers or nonsmokers; however, this observation contradicts the previous research of Mogielnicki and co-investigators,[31] which demonstrated that the level of health care provided by physicians may decrease for smokers. These conflicting results may be explained by the different disease states or types of care providers evaluated. For example, in this study, smoking was examined as one of several risk factors for a relatively non-life-threatening disease, while Mogielnicki et al studied surgical procedures for smoking-related diseases associated with high morbidity and mortality. In addition, this study involved primary care providers in one university-based family medicine practice, whereas the study by Mogielnicki et al evaluated internal medicine specialists throughout the country.

Over one third of patients who reported that they did not use alcohol were still told to quit drinking. Nondrinkers may have been advised to quit because physicians may have been unaware or unconvinced of the patient's reported nondrinking status. In addition, three of seven recommendations showed no difference between heavier and lighter drinkers. These results suggest that health care providers may focus counseling efforts when they are aware of a patient's drinking habits. Yet health care providers may be less aware of drinking patterns than of patient age, weight, and smoking status, since there were several instances in the study in which heavier and lighter drinkers were not counseled differently.

The high percentage of patients recruited from rural clinics was expected, since 64% of the population of West Virginia is rural, compared with 25% of the general US population.[41,45] No difference was found between rates of making recommendations to patients in urban compared with rural clinics, which suggests that the level of medical care did not differ on the basis of clinic locations. This finding conflicts with studies that have shown that rural patients received less preventive care information.[41,42] We propose two possible reasons for this conflict. In this study, the same attending and resident physicians practiced among the rural and urban settings, so consistent rates of patient lifestyle modification education should have occurred. In addition, the study sample may have been too small to show any statistically significant difference between rural and urban sites.

Although private-pay patients were difficult to assess because of low numbers, having Medicaid or third-party insurance coverage was found not to make a difference in counseling frequency, a finding that conflicts with previous studies that showed that Medicaid patients tend to receive fewer preventive services.[30] Similarity of care related to insurance status in this study, however, may have been due to the health care provider's unawareness of patients' insurance coverage. Also, primary care providers in West Virginia may be more accustomed to dealing with Medicaid patients because approximately 17% of West Virginia residents receive Medicaid,[46] compared with an estimated 12% of the US population.[47]

CONCLUSIONS

Based on patient reports, health care providers were found to recommend lifestyle changes in a modest percentage of GERD patients. These results suggest that health care providers modify lifestyle counseling with reference to specific patient characteristics, such as age, weight, and smoking status. Additional prospective research with larger population sampling, physician observation of patient interactions, and physician report is needed to make more definitive conclusions regarding physician provision of lifestyle modification recommendations to patients with GERD.

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