Low Back Pain in the Primary Care Setting

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A study of the natural presentation, course, and treatment of low back pain in the primary care setting was undertaken. One hundred and forty-four charts listing low back pain as a problem were reviewed at a family practice center for a period of one year.

A profile of the patient evaluated by the primary care physician emerged, revealing a high incidence of associated weight problems (70 percent), psychologic problems (33 percent), and hypertension (19 percent). The rate of actual or suspected disc disease (1.4 percent) was much lower than that reported in series from referral centers.

This study of low back pain in the primary care setting illustrates the usefulness of outpatient study in defining a problem category, recognizing disease as a symptom complex, suggesting modalities of treatment, and designing a curriculum for the primary care physician.

Low back pain (LBP) is a very common and often frustrating complaint confronting primary care residents and their colleagues in private practice. The innumerable and divergent causes of LBP challenge repeatedly the acumen of the primary care physician to differentiate between those that are life-threatening and those that may be more benign, yet still incapacitating. In addition, when one considers the annual cost of LBP in terms of lost productivity, insurance payments, and disability, the scope of the problem attains even more significant proportions.

Medical research projects during the last 20 to 30 years have for the most part been conducted by specialists in large secondary and tertiary care hospital centers. In consequence, disease profiles, established modalities of treatment, and educational programs reflect the biases of the unique and selected patient populations on which they are based.

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The present study was undertaken to evaluate LBP in the primary care setting. The data, derived from an audit of outpatient medical records, illustrate the usefulness of this method in defining a problem category, recognizing disease as a symptom complex, suggesting modalities of treatment, and designing a curriculum for future primary care physicians.

Materials and Methods

One hundred and forty-four outpatient charts, listing LBP as a new problem between July, 1973 and July, 1974, were retrospectively reviewed in detail at the Medical College of Virginia's Riverside Hospital Family Practice Model Unit in Newport News, Virginia.[1,2] The Riverside Model Unit provides medical care for approximately 10,000 patients.

Results

One hundred and thirty-eight of the 144 reviewed charts (95 percent) revealed a new complaint of LBP during the year studied. The female-to-male ratio was approximately two-to-one. Fifty-six percent of the LBP patients were black and 44 percent were white. These figures approximate the one-to-one race ratio and two-to-one female/male sex ratio of the patient population in the Family Practice Model Unit.

Figure 1 illustrates the age distribution of the LBP patients. Patients in the study ranged from a 14-year-old female with menarchal pain to an 80-year-old female with osteoarthritis. There is a bimodal distribution of LBP patients: one peak around the third decade, which roughly parallels the general patient population; and the broader and somewhat greater-than-expected incidence in the fifth to the seventh decades of life. The chronic LBP patients (for research purposes: those who presented three or more times per year for LBP) followed a similar bimodal distribution.

As seen in Figure 2, 75 percent of our LBP problems resolved, became quiescent, or failed to return after two visits in this one-year period.

Social problems (disability, job changes, and work loss) arising from LBP were mentioned on only 12 percent of the problem sheets. However, anxiety, depression, excess weight, and hypertension occurred singly or together in about 20 percent of the LBP patients. This was significantly more often than they occur in our non age and sex-matched general patient population. The prevalence of these problems in our general patient population is anxiety and depression (2.62 percent), excess weight (1.98 percent), and hypertension (5.58 percent).

A reexamination of the patient problem lists revealed that 21 percent is a probable underestimation of the true prevalence of psychologic problems associated with LBP. This figure increases to 33 percent if other problems (eg, insomnia, "nerves," hysteria) are included with anxiety and depression under the broad heading of "Behavioral Problems or Psychologic Symptoms Associated with LBP." The 20 percent figure for associated weight problems also proved to be an underestimation: 45 random LBP charts, of

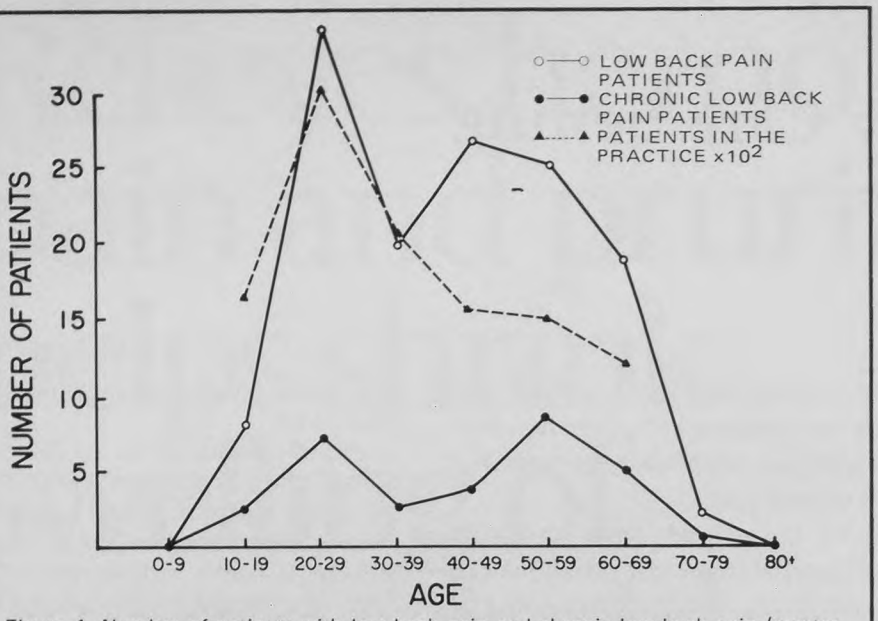

Figure 1. Number of patients with low back pain and chronic low back pain (greater than three visits per year) arranged according to age. These patients are superimposed upon the total number of patients in the practice arranged according to age.

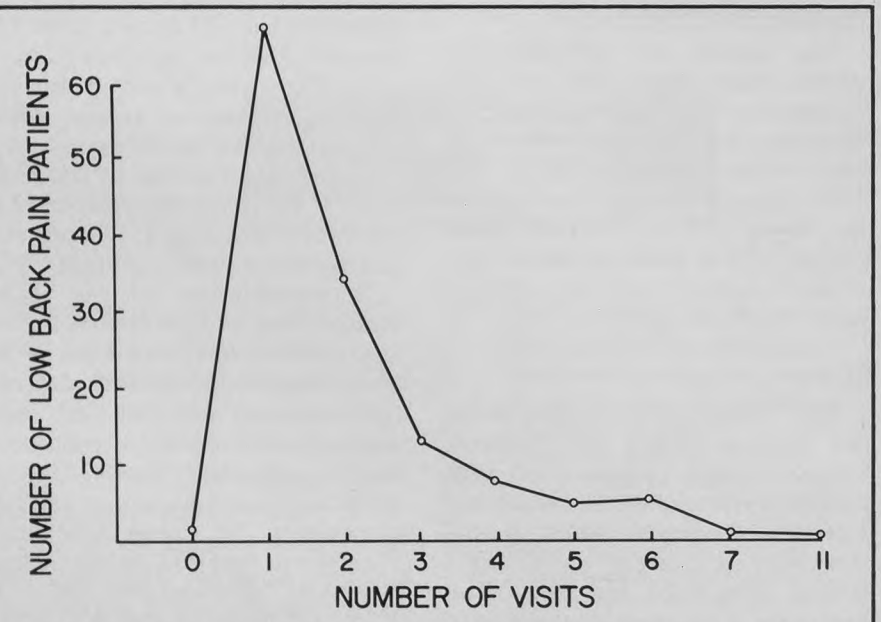

Figure 2. Patients arranged according to the number of times they were evaluated for low back pain during a one-year period.

which 13 (29 percent) listed obesity as an associated problem, were re-examined. Using the Metropolitan Life Insurance tables of desirable heights and weights, the reviewers discovered that 31 (70 percent) of the LBP patients exceeded their desired weight (all patients were placed in the large frame group).

Review of the problem-oriented office notes revealed the frequency of various subjective findings in these patients. As expected, LBP was the most frequent complaint (95 percent), followed by a positive history of a precipitating event in 38 percent. More serious neurological symptoms (eg, weakness, decreased sensation) occurred in less than ten percent of the patients.

Tenderness was the most frequent objective finding (40 percent). Spasm was noted in 18 percent, positive straight leg-raising in 15 percent, and other significant neurological findings (eg, decreased strength, decreased deep tendon reflexes, and decreased sensation) occurred in less than ten percent.

Table 1 illustrates the level of resolution of the LBP at the time of the chart review. A large majority (70 percent) of the diagnoses were non-specific and non-serious disorders: lumbosacral (muscle, back) strain or sprain (32 percent), LBP (29 percent), and muscle spasm (nine percent). Three and seven-tenths percent of the LBP was attributed to obesity alone, and another 3.7 percent was attributed to psychologic problems. It is noteworthy that disc disease was suspected in 4.4 percent of this patient series, yet only 1.4 percent (two patients) actually required a myelogram and subsequent disc surgery.

Table 2 illustrates the treatment these patients with LBP received, as indicated by the medical records. Conservative management proved to be the mainstay of outpatient therapy, with consultation sought in only six percent of the cases, hospitalization required in two percent, and surgery (as stated previously) in only a little over one percent (ie, two patients). It is interesting to note that weight reduction was encouraged in only five percent of the patients.

Despite the reported difficulty in attributing LBP to "positive" lumbosacral x-ray findings,[3] (spondylolisthesis, spina bifida, spondylosis, osteoarthritis), we attempted to evaluate

the yield from our radiologic diagnostic efforts. Interestingly, in the group of LBP patients who presented to our center one or two times in a one-year period, 39 percent received lumbosacral spine films (none positive). Of the LBP group who presented three or more times in a one-year period, almost three quarters (74 percent) received lumbosacral spine films (seven percent positive).

Discussion

Based on this review, the following picture of the LBP patient in the primary care setting emerges. The patient is usually middle-aged with a chief complaint of LBP, often precipitated by an accident. In the majority of patients, physical examination reveals only low back tenderness to palpation, with minimal or no objective neurological signs or evidence to indicate serious disease. Despite the fact that a truly specific diagnosis is often lacking, the vast majority of these patients (many of whom also suffer from hypertension, weight or psychologic problems) respond quite favorably to conservative measures.

The above is a profile of low back pain as it occurs in the primary care setting: a profile based on actual outpatient chart review, rather than anecdotal data from a single physician or secondary and tertiary data from a referral center.

Despite the acknowledged limitations of a one-year retrospective study of a chronic disease (with its lack of age-sex matches), we believe a valid data base has been derived which can be utilized in designing a segment of the curriculum for the family practice resident. This information can be used to define specific knowledge, skills, and attitudes one requires to comfortably, economically, and competently handle low back pain in the primary care setting.

For example, based on this data, we may impart knowledge which might prevent the family practice resident from using the trial-and-error method of his predecessors in general practice. Teaching the skills to recognize serious pathology remains an essential part of any training program. Despite the fact that a ruptured disc is reported in 22 percent of a LBP series from the Mayo Clinic[4] and in only 1.4 percent in our study, the primary care physician must still entertain this important diagnostic possibility. However, it is also extremely important for the primary care physician to be prepared to effectively and economically manage the vast majority of his LBP patients who will have very minimal, if any, physical or laboratory findings to indicate serious pathology. He must know how to deal with an ambulatory LBP population and the numerous associated medical, social, psychologic, and economic problems which are imposed upon these patients by their condition and the treatment regimen.

Skills must include proficiency in the physical examination (seeking subtle as well as "classic textbook" signs) and the medical history. In relation to the latter, interviewing skills must be developed to elicit not only pertinent medical history, but also the frequent and often subtle symptoms and degrees of depression, anxiety, and malingering. Skillful adaptation of a predominantly restrictive and conservative form of therapy (ie, weight loss, bed rest) to an ambulatory population becomes essential if any degree of compliance is to be attained.

Based on this study, certain specific attitudes should be fostered in a family practice training program. First, future primary care physicians must be prepared to accept the fact that a large portion of their LBP patients will continually challenge their ability to make a specific diagnosis. Perhaps these physicians can be assisted in directing their professional anxiety in dealing with LBP patients to more productive and rewarding measures, such as patient education and prevention of further back problems. Second, the attitude should be promoted that the medical record is a basic and valuable clinical tool in the primary care setting: one which can be used for valuable self-assessment, reeducation, and research.

Medical research has traditionally concerned itself predominantly with the "tip of the iceberg": those patients and problems which have, through referral and case complexity, reached secondary and tertiary care facilities. Research has neglected the physician-patient interface in the primary care setting not because of lack of interest, but because of the difficulty in objectively studying an ambulatory population whose care has been largely episodic, and whose medical needs and problems are interwoven with their day-to-day lives. However, if family practice is to establish itself as an academic discipline, it must accept the challenge to build and apply a body of knowledge derived from outpatient research. One means of assessing what is going on in the primary care medical situation is review of a clinical tool available to all workers engaged in primary care research: the medical record.

Drawing conclusions based on reviews of outpatient medical records is not without its shortcomings. Besides the inherent problems of retrospective analysis, the LBP study raises an important question: how

Table 1. Causative Factors

Lumbosacral (muscle-back) strain or sprain	32 %
Low back pain	29 %
Osteoarthritis	12 %
Muscle spasm	9 %
Obesity	3.7%
Psychologic	3.7%
Back Deformity	2.2%
Disc disease	1.4%
Urinary tract infection	1.4%
Other, (prostatitis, chronic pelvic inflammatory disease, cancer of the cervix rule out metastasis, menstrual disorders)	2.6%

Table 2. Approaches to Management

Muscle relaxants	56 %
Analgesics	46 %
X-ray	45 %
Heat	43 %
Bedrest	33 %
Lab	
Urinalysis	26 %
Complete blood count	16 %
Exercise	7 %
Consultation	6 %
Weight reduction	5 %
Hospitalization	2 %
Surgery	1.4%
Brace	<1 %

accurately does data derived at one center reflect the experience at centers with different age, sex, race, financial, occupational, and geographic distributions? Initial comparison of reviews at model units with those from private practice settings have revealed encouragingly similar data and conclusions. Controls matched for age and sex must be an essential part of future studies. Another obvious problem is that this research by its very nature is limited to what is recorded in the medical record. Omissions (eg, important negatives, lab data) cannot be "read into" the chart, nor can one compensate for one recorder who may be less compulsive, accurate, or experienced than his colleague. Future studies of chronic diseases such as low back pain will, by definition, have to be run prospectively over an extended period of time to reflect more accurately the natural history and course of the problem. New and more effective means of follow-up will have to be developed to show more accurately the natural course of disease processes in a mobile population. Cautious conclusions from such studies must be drawn in the face of an overwhelming complex of medical, social, psychological, and economic variables. Finally, more philosophical questions will be raised in the course of medical record reviews. For example, what constitutes a problem in a medical record: patient awareness? doctor awareness? a combination of these?

Despite such shortcomings, the potential value of investigation in the primary care setting is unlimited. No longer will family practice educators be forced to rely on inappropriate, anecdotal, and "obvious" knowledge to define the field of family practice and design curricula. Outpatient record review provides a means of studying the early phases of the development of disease in the natural environment of the host, resulting in information which should be invaluable to all primary care physicians: subtle early signs and symptoms, symptom complexes, behavioral sciences, treatment and treatment compliance, preventive measures, etc. This type of data can serve as a foundation for establishing sensible curricula, which will provide the knowledge, skills, and attitudes essential for future family doctors. Having defined such a curriculum, one has also developed a means of assessing one's own practice and those of one's peers. This data can also be used for record review, re-education, and comparison of the cost effectiveness of different health-care delivery systems.

Having forced its way into the academic arena, family practice is faced with many exciting challenges, the most important of which is to assure its own survival by examining and defining itself as an academic discipline. Study of the natural history of disease in the primary care setting must be the very foundation of medical practice.

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