CURRENT COMMENT

EVALUATION OF A CONTINUING EDUCATION PROGRAM IN RHEUMATOID ARTHRITIS

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A continuing medical education (CME) program in rheumatoid arthritis was implemented and evaluated in six community hospitals. It was targeted at primary care physicians and utilized physicians identified by their peers as being educationally influential for the dissemination of content knowledge. Although inpatient and outpatient audits of physician records demonstrated little change in three control communities, substantial improvement in the utilization of diagnostic procedures and patient management was documented in the three intervention communities utilizing the influential physicians. CME delivered through community-based educationally influential physicians is an effective way to change physician behavior in small communities with no prior ongoing educational programs. This approach should improve the primary care given to patients with rheumatoid arthritis and reduce the need for participation of academic faculty in traditional CME programs.

The need for continuing medical education (CME) for physicians is well recognized and encompasses all the fields of clinical practice. The traditional approaches to CME, short courses sponsored by academic medical centers, medical societies, and national organizations have been criticized because they are often unstimulating, irrelevant to the practice setting of the individual physician, inconvenient, expensive, and do not ultimately result in a change in physician behavior. Using this information, together with an increasing concern about faculty availability for postgraduate teaching, we developed a community-based educational program for primary care physicians that minimized academic medical center faculty input and maximized community resources.

The subject matter for this program was rheumatoid arthritis (RA), and we utilized physicians, identified by their peers as being educationally influential, for the dissemination of information. The methodology for the selection of the participating physicians has been described previously (1). A survey instrument that accurately described the major attributes of these influential physicians was used in each of the project communities to successfully identify these key individuals. Instructional objectives which defined the knowledge and skills that primary care practitioners should possess were developed and a needs assessment was undertaken. Based upon these results, an educational program was developed (2). The major components of this program were a syllabus which provided a concise review of the recent literature dealing with RA, audiovisual materials which demonstrated subject matters that could best be shown using sound and motion, and a clinical preceptorship within the University of Michigan Arthritis Center. After completion of this program, these educationally influential physicians returned to their home communities

Table 1. RA inpatient audit results

	Preintervention*		Postintervention*	
	Control	Experimental	Control	Experimental
History				
Symptoms of inflammation	1 (3)	0	7 (21)†	12 (41)†
Extraarticular mani-				
festations	3 (9)	1 (6)	4 (12)	2 (7)
Medications	17 (50)	8 (44)	24 (73)	23 (79)†
Complications of therapy	3 (9)	2 (11)	5 (15)	5 (17)
Physical examination				
Heat, redness, swelling	8 (24)	5 (28)	15 (45)	22 (76)†
Range of motion	19 (56)	7 (39)	9 (27)	14 (48)
Deformity	12 (35)	8 (44)	18 (55)	19 (66)
Diagnostic studies				
Sedimentation rate	20 (59)	12 (67)	12 (36)	22 (76)
Latex fixation	3 (9)	3 (17)	6 (18)	14 (48)†
Joint roentgenogram	5 (15)	3 (17)	12 (36)	8 (28)
Management				
Aspirin	19 (56)	13 (72)	15 (45)	19 (66)
Nonsteroidal anti-				
inflammatory agents	8 (24)	4 (22)	18 (55)	11 (38)
Gold	7 (21)	5 (28)	6 (18)	3 (10)
Corticosteroids	13 (38)	8 (44)	18 (55)	10 (34)
Physical therapy	21 (62)	12 (67)	16 (48)	23 (79)
Total patients	34	18	33	29

* Numbers in parentheses indicate percent.
† Chi square, $P < 0.05$.

to disseminate what they had learned. This paper describes the evaluation of the program and discusses its potential implication for CME in the future.

MATERIALS AND METHODS

Six communities were utilized in this program, and they were randomly assigned to a control or intervention group. These communities were matched for size, number of physicians, hospital resources, and absence of a rheumatologist. All primary care practitioners from these six communities were asked to keep a log noting all patients they saw in their offices with a diagnosis of rheumatoid arthritis. This was done for a 2-month period prior to the educational intervention and repeated again one year later. Other patients known to have rheumatoid arthritis, but not seen during that particular 2-month period, were added to the log book. Eighteen percent of patients listed were in this category. Twenty-two of thirty-one (70%) physicians contacted compiled this log. In addition, all patients discharged from the hospital with a primary diagnosis of RA during the intervention period of one year were compared to patients discharged during the preceding year. Since these populations are not independent, an analysis of individual admissions revealed a 9% readmission rate from the baseline to the intervention period.

The charts of all patients identified in the above manner were audited against criteria developed by physicians with expertise in the management of rheumatic disease. Data concerning history, physical examination, laboratory studies, management, and disposition were collected on each patient.

Attempts were also made to stratify patients according to diagnostic criteria, disease classification, and functional ability (3).

RESULTS

In the preintervention period, 52 patients were discharged from the six project hospitals with a primary diagnosis of rheumatoid arthritis, 34 in the control and 18 in the experimental hospitals. A total of 62 patients were discharged during the intervention period, 33 in the controls and 29 in the experimental hospitals. The male/female distribution and the average and median ages were similar during both data collection periods. Documentation of historical findings showed marked improvement in both the control and intervention communities (Table 1). Improvement was also noted in the physical examination, but this was predominantly seen in the intervention communities. Improvement in the utilization of diagnostic procedures and in the management of patients was also found, but the latter did not attain statistical significance. The appropriate use of aspirin and physical therapy and limited use of corticosteroids were stressed in the educational program.

The audit in the outpatient setting was carried out in twenty-two physician offices. One hundred twelve

Table 2. RA outpatient audit results

	Preintervention*		Postintervention*	
	Control	Experimental	Control	Experimental
Average number of visits per year	2.72	2.95	2.91	3.20
Treatment program:				
Aspirin	29 (54)	26 (59)	28 (48)	34 (63)
Gold	13 (24)	9 (20)	12 (21)	15 (28)
Nonsteroidal anti-inflammatory agents	22 (41)	15 (34)	27 (47)	22 (41)
Corticosteroids	23 (43)	16 (36)	25 (43)	10 (19)†
Physical therapy	8 (15)	5 (11)	10 (17)	29 (54)†
TOTAL	54	44	58	54

* Numbers in parentheses indicate percent.
† Chi square, $P < 0.05$.

patients were identified as having rheumatoid arthritis during the intervention year compared to 98 during the preceding year. Since physicians working in an ambulatory setting did not adequately document the key historical and physical findings, we could not ascertain the validity of the diagnoses. While inpatient records are often considered to be legal documents and are completed in detail, the outpatient record often serves as a reminder of what occurred during an encounter rather than an accurate description of the pertinent details. Eighty-two patients were female (73%) and 30 were males (27%). The frequency of visits increased slightly (Table 2) in both control and experimental groups. No changes in the control group were found in regard to treatment of patients with rheumatoid arthritis, but statistically significant changes were noted in the experimental group in the reduction of corticosteroid usage (with a proportional increase in aspirin) and in the improvement of physical therapy utilization. Both of these approaches to the therapy of RA were stressed in the educational program.

It was not possible to document outcome measurements since the medical records could not be used to assess death, disability, complications of therapy, or cost.

DISCUSSION

Community-based primary care practitioners rely to a great extent on informal methods of communication and education. Experiences acquired in the process of diagnosing and treating illness are probably the strongest influences that bring about changes in professional practices. We provided a group of physicians, identified by their peers as being educationally influential, with additional knowledge about rheumatoid arthritis. At the completion of their self-study program and preceptorship, they returned to their home communities and were then responsible for disseminating what they had learned. This was done in various ways, including formal talks. The most effective approach was the informal communication that took place in discussing patient problems. When the community physicians had a problem with a patient who had RA, they turned to this individual for advice. Since he had just completed this educational program and was armed with knowledge, skills, audiovisual programs, and reprints, he was usually able to answer the question and provide assistance.

The prime feature of this approach is utilization of the "teachable moment," when one of his colleagues has a clinical problem that he could help solve. During this process, the colleague is in a position to receive continuing education that meets practically all of the ideal standards for a CME program. The material is directly relevant to patient care; it is timely and convenient; it is practical; it is individually based; it has immediate payoff; it takes a minimum of time, and it costs very little! This process, occurring in a series of incremental steps spread widely over time, should accomplish a more profound and lasting educational impact than the traditional postgraduate course.

After these physicians had returned to their homes and had been in place for one year, we returned to the communities to collect followup data to see if this educational effort had succeeded in changing physician behavior. Since RA is not a common disease in these communities of less than 15,000 population, and one year is a relatively short period of time for the informal communication process to work, we were not optimistic about finding significant changes in physician behavior. The improvement in documentation of the historical

findings in inpatient charts may result from the program but is probably better correlated with changes in record keeping that have resulted from quality assurance committees, Professional Standard Review Organizations, and the malpractice situation. Improvement in the documentation of physical findings and utilization of laboratory studies were far more prevalent in the experimental communities and appeared to be related to our educational efforts. Patient management is still the key, and although substantial improvement in the frequency of use of aspirin and physical therapy was seen, such usage did not attain statistical significance. The same was true with the decreased utilization of corticosteroids. Similar changes were found in the outpatient audit, but here statistical significance was achieved in reduced utilization of corticosteroids. Unfortunately, these are measures of the process of care, and measures of outcome could not be made in a retrospective project because the details needed to measure disability, complications, and cost were not well documented in the records.

Based upon the data available now, we conclude that CME delivered by community-based educationally influential physicians is an effective way of changing physician behavior. Significant changes have already occurred in the first year and should continue to occur over time. This educational project has helped to establish lines of communication between community hospitals and an academic medical center which should facilitate patient care. After the initial time commitment by the faculty, there is no need for time-consuming travel to these communities to give short seminars. The program has clearly resulted in a change in behavior by the community physicians, and long-term followup will be undertaken to see if the improvement in the process of delivering care will ultimately lead to improved outcomes. One immediate improvement has been a change in outlook by the community physicians who no longer feel that little can be done for the patient with RA.

In small communities with no ongoing educational programs and no rheumatological expertise available, this approach may be the best way of improving the care of patients with rheumatic diseases. Its applicability in other settings is now being studied.

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