Clinical Information Affects Electrocardiogram Interpretation and Can Influence Patient Entry Type

To the Editor:

It is commonly known in clinical practice that patient history influences the interpretation of diagnostic tests. I conducted a study to determine whether clinical information influences the interpretation of electrocardiogram (ECG) with regard to nonspecific ST-T segment changes and patient entry type.

Within the InterQual hospitalization criteria (InterQual Level of Care Criteria, McKesson Health Solutions, Newton, Mass), chest pain admission standards include patients presenting with “chest pain controlled and hemodynamically stable (systolic blood pressure > 90 mm Hg)” as well as “ischemia on ECG” or “non-diagnostic ST-T changes on ECG.” It is known that nonspecific ST-T segment changes can indicate ischemia.1

The use of InterQual criteria allows the patient to meet screening standards for admission for patient entry type if the patient presents with chest pain and nonspecific ST-T segment changes or ECG changes thought to be ischemic. This satisfies the severity of illness component of the admission criteria.

The Joint Commission on Accreditation of Healthcare Organizations required ECGs initially interpreted by emergency medicine specialists to be reread by cardiologists. Although no longer mandated, this remains a common practice. However, cardiologists do not have clinical information available to correlate with the ECG interpretation. The correlation of the interpretation of ECGs by emergency medicine specialists and cardiologists has already been discussed with regard to the reinterpretation rule previously mandated by the Joint Commission on Accreditation of Healthcare Organizations.2

If clinical information influences the interpretation of nonspecific ST-T segment changes and possible ischemia, interpretation by the cardiologist may be misleading, and it may appear that admission criteria are not present. This can result in third-party denial of payment for hospitalization or a decrease in reimbursement, with the payer requiring a change of patient entry type to observation.

Ten patients were chosen for this study, each with an initial ECG that the emergency physician interpreted to have nonspecific ST-T segment changes and which was reread by the cardiologist. These patients presented to the emergency department with chest pains that were possible acute coronary syndromes.

Two cardiologists, each blinded to the results of the other for interpretation, were shown the ECGs. After interpreting the ECGs, the same cardiologist was again shown the ECGs in random order but with accompanying clinical scenarios.

Both cardiologists read the ECGs that did not include clinical information as normal in 8 of 10 patients. Two ECGs were read as nonspecific ST-T segment changes; however, the two ECGs read as nonspecific ST-T segment changes by the first cardiologist were different ECGs than the two read as nonspecific ST-T segment changes by the second cardiologist.

When the ECGs were shown again to the same cardiologists, clinical information accompanied the ECGs. The interpretations by the first cardiologist were that 9 of 10 patients had nonspecific ST-T segment changes from possible ischemia, and one ECG was read as normal. The interpretations by the second cardiologist were that 7 of 10 patients had nonspecific ST-T segment changes. The remaining three ECGs were interpreted as low voltage, and it could not be determined if nonspecific ST-T segment changes were present or not.

In a prospective study by Hatala et al,3 the importance of clinical information on ECG interpretation was demonstrated; clinical information changed the interpretation of ECGs from normal to abnormal in most of the ECGs read by the cardiologists. This difference in interpretation has a significant influence on the retrospective audits of patients who are admitted with chest pain and nonspecific ST-T segment changes thought to arise from ischemia. The ECG interpretation by the cardiologist when a lack of clinical information is present may suggest to a third-party auditor that initial
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InterQual criteria were not met; therefore, the patient should have had a patient entry type other than admission, such as observation. This difference has a financial implication for hospitals.

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References

Osteopathic Graduate Medical Education Opportunities Abound in South Florida

To the Editor:

In his letter, Daniel H. Belsky, DO, describes the lack of academics and the lack of affiliation between osteopathic medical schools and hospitals in south Florida, where he recently relocated (J Am Osteopath Assoc. 2003;103:117-118).

As co–chief resident of the North Broward Hospital District/Nova Southeastern University's College of Osteopathic Medicine (NSU-COM) family medicine residency—which happens to be one of the largest osteopathic family medicine programs in southeast Florida—his observations are very much appreciated.

Our residency program includes 24 family medicine residents and 10 family medicine fast-track interns who rotate primarily through Broward General Medical Center, one of the largest hospitals in the North Broward Hospital District. That district has an official teaching affiliation with NSU-COM and is the clinical training site for NSU-COM interns, residents, and more than 1000 medical students. In addition, there are two other osteopathic family medicine programs, an orthopedic surgery program, an internal medicine program, and two dermatology programs, all in south Florida.

I agree with Dr Belsky that the Northeast is abundant with osteopathic graduate medical education programs, as I too trained in that region and was exposed to many of these programs as a student at the Philadelphia College of Osteopathic Medicine. However, as a voice for my fellow residents, I believe our program and other south Florida osteopathic graduate medical educational programs should have the respect and acknowledgment that is deserved.

Although there is clearly a need to improve medical education in our area of the country, I believe we have already come a long way.

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To the Editor:

In his letter to the editor (J Am Osteopath Assoc. 2003;103:117-118), Daniel H. Belsky, DO, asserts that “there is a lack of academics in our area” [south Florida] and that “there are no teaching hospitals nearby, no residency programs of note, and no recognizable affiliations with the local osteopathic medical school.”

I found it disconcerting that Dr Belsky would present such claims, especially as Nova Southeastern University’s College of Osteopathic Medicine (NSU-COM), Fort Lauderdale, Florida—a mere 30 miles south of Dr Belsky’s home in Boca Raton—does indeed provide all the services and programs Dr Belsky claims are lacking in south Florida.

In 1999, NSU-COM embarked on a program to revolutionize clinical education and training and increase opportunities in osteopathic graduate medical education programs in south Florida, including internships, residencies, fellowships, and continuing education programs, by establishing the Consortium for Excellence in Medical Education (CEME).

The consortium has since evolved into a unified medical education system composed of teaching hospitals and hospital systems, ambulatory systems, county health departments, and social service agencies spanning Florida and the southeastern United States. In Palm Beach County, where Dr Belsky resides, NSU-COM has active and symbiotic affiliations with a host of medical facilities, including the Columbia Hospital System, the Palm Beach County Health Department, and the West Palm Beach Veterans Affairs Medical Center.

In July 2000, NSU-COM established the Osteopathic Preventive Medicine and Public Health Residency Training Program—aided by the American Osteopathic Association and Accreditation Council on Graduate Medical Education—which has earned universal praise and national recognition. This graduate medical education program—the first of its kind in the osteopathic medical profession—is made up of three allopathic and three osteopathic residency slots that are conducted at the West Palm Beach Veterans Affairs Medical Center and the Palm Beach County Health Department.

Additionally, NSU-COM is continually expanding osteopathic graduate medical education opportunities. In July 2003, a collaboration between NSU-COM and Palms West Hospital (of the Columbia Hospital System), in Palm Beach County, Florida, will launch a pediatric residency program. Established to provide training for new primary care pediatricians, the residency program prepares students for challenges presented in a general ambulatory pediatric practice as well as in a hospital setting. Thanks to this symbiotic partnership, nine pediatric residency slots—three per year—have been established.

Needless to say, NSU-COM’s hospital affiliations expand well beyond the confines of Palm Beach County. Currently, NSU-COM and its network of CEME partners have been established.

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are providing residency opportunities in areas such as anesthesia, dermatology, family medicine, pediatrics, internal medicine, orthopedics, general surgery, and preventive medicine. In Florida, NSU-COM and CEME currently have 72 internship and residency positions in Miami-Dade County, 45 in Broward County, and 52 in Palm Beach County. We are also developing programs in internal medicine, sports medicine, and forensic pathology.

As dean of NSU-COM for the past 5 years, I can state without reservation that we have been at the forefront for years when it comes to forging mutually beneficial affiliation agreements and providing outstanding graduate medical education opportunities for osteopathic medical school graduates in the United States.

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Response

Dr Pinto is correct in stating that osteopathic graduate medical education programs in south Florida “should have the respect and acknowledgment that is deserved.” While I stated that there were no residency programs of note, my implied emphasis was on the lack of awareness of such programs in the community. Before writing my original letter, I only knew of the training programs in south Florida in affiliation with Nova Southeastern University’s College of Osteopathic Medicine as they are listed in the American Osteopathic Association Directory. Dr Pinto can be sure that the osteopathic graduate medical education programs in his area have my respect and acknowledgment; my concern is with the community having the same.

Dean Silvagni should also be advised of my concern for lack of community awareness of such programs. Although he does well in informing members of our profession about the osteopathic residency programs in south Florida through his response to my letter, I implore him to get that information out to the general public.

As a former member of the Committee on Postdoctoral Training (1976-1986) and later as chairperson (1986-1992), I am aware of the quality of osteopathic graduate medical education programs and the dedication of their members who help to ensure that quality. Further, as former chairperson of a major department with a large residency program in a college of osteopathic medicine, I appreciate the significance of academic input into training students; however, that is not my issue. I am primarily concerned with the community recognizing our centers of excellence—such as the Consortium for Excellence in Medical Education, as noted by Dean Silvagni—for what they are.

I appreciate the responses of Drs Pinto and Silvagni and hope that they will consider my comments.

Daniel H. Belsky, DO, MSc
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Clinical Geriatrics

Drs Dharmarajan and Norman have presented a useful textbook of clinical geriatrics by expert authors who cover topics that include principles of geriatrics, geriatric syndromes, neuropsychiatry, and visceral organ disease as well as topics unique to geriatrics (eg, physiology of aging, pharmacology of aging, geriatric nutrition). Furthermore, syncope, falls, sleep disorders, and thermoregulation are reviewed in a useful and simplistic fashion. Delirium and dementia, two areas particularly challenging to primary care physicians, are well-covered. Finally, a portion of the textbook is devoted to the human immunodeficiency virus infection as it relates to the aging population.

This textbook provides cutting-edge information in an easy-to-read format, with numerous tables throughout and references at the end of each chapter. The guide will be helpful to primary care physicians, especially those who specialize as family practice physicians, internists, and general practitioners, and will have particular value for physicians-in-training. As a subspecialist in pulmonary medicine who is also involved in critical care medicine, I believe it will be useful to physicians such as myself.

I therefore highly recommend this textbook and believe it would be a welcome addition to any generalist’s library. I also believe that the book can serve as an aid for physician assistants and nurses who work with physicians in the management of elderly patients.

Gilbert E. D’Alonzo, Jr, DO
Editor in Chief