

Osteopathic manipulative treatment and outcomes for pneumonia

To the Editor:

In their article, Noll and colleagues (*JAOA* 2000;100:776-782) suggest that osteopathic manipulative treatment (OMT) was associated with a shorter duration of intravenous antibiotic therapy and shorter length of hospital stay in elderly patients with pneumonia. Although this study represents a first step in evaluating the association, problems with the study methods and known variations in the treatment and outcomes of pneumonia limit the ability to draw conclusions from the trial.

There are a number of methodologic problems with the study design.¹ The treatment and control groups do not appear to be similar at the start of the study. While not statistically different (owing to small sample size), baseline leukocyte counts were higher, and there were more patients with nursing home-acquired pneumonia, aspiration pneumonia, and systemic corticosteroid use—conditions associated with poorer outcomes—in the control group. Risk stratification was based on a scoring system that was designed for patients in the intensive care unit (ICU) and is not disease specific.² No attempt to adjust outcomes by risk or underlying type of pneumonia was mentioned. Rather than an intent-to-treat analysis, the authors decided to exclude patients who failed intervention with OMT. No information is provided about the ranges of hospital length of stay or the duration of antibiotic treatment in the two groups. Further, the authors report mean duration of antibiotics and mean length of stay rather than statistical medians—problematic because it is possible that one or two outlier patients in the control group could account for the differences in mean outcomes reported.

My second concern is related to variations in treatment and outcome that have been documented for patients with pneumonia. Processes of care such as antibiotic selection, first antibiotic dose timing, ICU admission, and other patient characteristics that were not reported may have more impact on observed outcomes.^{3,4} Previous studies have demonstrated substantial variability in hospital length of stay for patients with community-acquired pneumonia which cannot be explained by differences in patient characteristics.⁵ The use of antibiotics with high oral bioavailability, such as the fluoroquinolones, may have substantially limited the need for intravenous treatment during hospitalization for some patients. Without information on other aspects of care provided to patients, it is difficult to draw the conclusion that provision of OMT alone was associated with shorter duration of antibiotic use and length of stay.

Finally, shorter duration of antibiotic therapy and length of stay, though associated with reduced costs, may not represent outcomes for pneumonia that are most important to patients. In a recent study, Metersky and associates⁶ demonstrated that adjusted mortality, placement in a nursing home, and hospital readmission increased for patients with pneumonia during a period when hospital length of stay was declining. It is therefore possible that shortened hospital stays may have the unintended effect of worsened patient outcomes, as measured by mortality at 30 days, readmission, or nursing home placement.

Although OMT may have beneficial effects in patients with pneumonia, we are left with unanswered questions as a result of this study.

Dale W. Bratzler, DO

Principal Clinical Coordinator
Oklahoma Foundation for Medical Quality
Oklahoma City, Oklahoma

References

1. Guyatt GH, Sackett DL, Cook DJ. Users' guides to the medical literature. II. How to use an article about therapy or prevention. A. Are the results of the study valid? *JAMA* 1993;270:2598-2601.
2. Le Gall JR, Loirat P, Alperovitch A, Glaser P, Granthil C, Mathier D, et al. A simplified acute physiologic score for ICU patients. *Crit Care Med* 1984;12:975-977.
3. Meehan TP, Fine MJ, Krumholz HM, Scinto JD, Galusha DH, Mockalis JT, et al. Quality of care, process, and outcomes in elderly patients with pneumonia. *JAMA* 1997;278:2080-2084.
4. Gleason PP, Meehan TP, Fine JM, Galusha DH, Fine MJ. Associations between initial antimicrobial therapy and medical outcomes for hospitalized elderly patients with pneumonia. *Arch Intern Med* 1999;159:2562-2572.
5. Fine MJ, Medsger AR, Stone RA, Marrie TJ, Coley CM, Singer DE, et al. The hospital discharge decision for patients with community-acquired pneumonia. *Arch Intern Med* 1997;157:47-56.
6. Metersky ML, Tate JP, Fine MJ, Petrillo MK, Meehan TP. Temporal trends in outcomes of older patients with pneumonia. *Arch Intern Med* 2000;160:3385-3391.

Response

To the Editor:

We agree with Dr Bratzler's statement that this study leaves us with unanswered questions, and that is why we believe other studies are needed to confirm our findings. The assertion that using manipulation techniques on the musculoskeletal system, as guided by a philosophy, will improve clinical outcomes in a life-threatening infection of a visceral organ system (in this case pneumonia) remains unconventional. One randomized clinical trial in a specific population does not settle the question. Our goal is not to prove something that we think we know about osteopathic manipulative treatment (OMT) but to discover

what is true about the efficacy of OMT. Dr Bratzler's comments are helpful as we contemplate designing better and larger studies. As we gain experience and develop a literature base, often with these American Osteopathic Association (AOA)-sponsored projects, we will be able to compete for much larger funding sources outside the osteopathic medical profession.

Dr Bratzler makes many observations, which we will attempt to address here. First, Dr Bratzler believes differences between groups were not significant because of small sample size. The opposite is more likely; there is no significant difference between groups because there are 58 subjects that have been randomly assigned to one or the other group. As the number grows, it is less likely that baseline differences will be significant. However, we agree with Dr Bratzler that non-statistically significant differences between groups could have affected the clinical outcomes. We believe that the number of subjects enrolled in the study was not of sufficient power to conduct the types of subgroup analysis that Dr Bratzler mentions. There are now available newer risk stratification/severity of illness systems that are specific for pneumonia, which we can use in the future. The simplified acute physiology score (SAPS) has great utility for researchers on a limited budget, as it uses 14 individual clinical parameters present in the chart of virtually every patient on admission and ranks each of them for severity, producing one objective score. Unlike similar systems, the SAPS does not ask for an arterial blood gas measurement, which is important when many of your subjects do not normally have arterial blood gas measurements done and are dependent on Medicare to cover the cost of customary testing. The SAPS incorporates the patient's age; heart rate; body temperature; respiratory rate; urine output; blood urea nitrogen level; hematocrit; white blood cell count; glucose, potassium, sodium, and bicarbonate levels; and mental alertness as determined by the Glasgow Coma score. At least by these parameters, ranked each for severity and put into one score, both groups in the study are randomly assigned to be nearly identical at baseline ($P=.86$).

We agree that additional summary statistics would provide more information to readers of the article. In examining the

distributions of the hospital length of stay and the duration of antibiotic treatment, no extreme outliers were detected, and the medians were found to be extremely close to the mean values. Additionally, Wilcoxon rank sum tests (the nonparametric equivalent of the analysis of variance [ANOVA] procedures reported in the article) on these variables resulted in exactly the same conclusions as the ANOVA procedures. We reported the more widely recognized summary statistics (means and standard deviations) and ANOVA results.

Dr Bratzler's second concern is that there is much variation in physician treatment of pneumonia (for example, antibiotic selection), which can affect outcomes independent of differences in patient characteristics. This observation is correct. However, to standardize all the practices and decisions involved for the clinical care of pneumonia requires consensus, a detailed clinical pathway, physician buy-in, and approval by an institutional review board. A study could be designed this way but is much harder to implement and, in the end, would have limited applicability to what is usually done in a community hospital. Our goal in this study was to study adjunctive OMT for pneumonia in a real clinical practice setting with a sense of practicality about what we could do. Differences in practice variations are addressed by blinding physicians to group assignment. As clinical decisions are made without knowledge of the patient group assignment, real difference between groups are not likely, especially as the number of participants in the study increases. For example, it is highly unlikely that the blinded physicians would randomly make mostly bad antibiotic choices in the control group and mostly good choices in the treatment group. The high bioavailability of fluoroquinolones is a good point to consider; however, everyone still starts out with an intravenously administered antibiotic in our target population because of limited ability to take oral medications owing to the severity of illness and decreased mental status.

Dr Bratzler correctly points out that decreased length of stay does not always equate to better overall outcomes. This misses the point, however, that conscientious physicians labor to keep sick people in the hospital and discharge them when they become medically stable. If blinded

physicians consistently discharge patients early who received a particular treatment and discharge later those who did not receive the treatment, this suggests benefit.

My last comment is that we have too few investigators participating in clinical research on the efficacy of OMT. Osteopathic manipulative treatment is an important aspect of our heritage, and opportunities abound for productive research. I want to encourage Dr Bratzler (and others) to become involved, as we need investigators with Dr Bratzler's experience in research and publication.

Donald R. Noll, DO

Associate Professor of Internal Medicine
Kirksville College of Osteopathic Medicine
Kirksville, Missouri

The DO May issue bridges medical philosophies

To the Editor:

As an allopathic physician working in an osteopathic hospital, an avid student of Vietnam War history, and three-time traveler to Vietnam, I would like to commend you on the May 2001 issue of the *The DO* (*The DO* 2001;42:5), shared with me by a colleague.

The articles on the shared perspectives between osteopathic medicine and traditional Vietnamese medicine and culture were well-written, accurate, and poignant. Although at some level I knew great similarity existed between these two medical philosophies, I never articulated that connection until now.

In 1996, I visited several hospitals in Vietnam, including the Institute for Traditional Medicine in Hanoi, where they were practicing moxibustion (burning of herbs), cupping, and acupuncture. The Western-style hospitals were generally 50 to 75 years behind ours in terms of facilities and medical practice.

At Bach Mai Hospital in Hanoi, which suffered bombing during the American War (as it is called there), patients were cleaned, fed, and tended to entirely by fam-

(continued on page 433)

Letters continued

ily members. In the laboratory, the microscopes had mirrors as light sources. Laboratory technicians tallied white blood cell differential counts with the aid of a petri dish containing 100 small pebbles, rather than mechanical counting devices.

In one hospital in Danang, we saw patients two to a bed, which seemed odd until I recalled that this was done routinely at Charity Hospital in New Orleans into the 1960s. Another of Danang's hospitals houses a highly respected burn unit, a beneficial by-product of napalm. In the Danang hospital, the intensive care unit had one ventilator, which was attached to an elderly woman who had just undergone abdominal surgery after being gored by the family water buffalo. Hospitals, like most buildings in Vietnam, are open air, so patients are at the constant mercy of heat and humidity, flies and mosquitoes, rain and sun.

Despite these drawbacks from a contemporary Western perspective, their medical practice seemed sound, if dated. It reaffirmed my medical school training that 90% of everything you need to know is in the patient's history and physical examination, a fact often lost in our high-tech society.

Osteopathic medicine indeed does take a broader, gentler view of medicine and patients and is highly compatible with the Vietnamese cultural perspective that recognizes the trinity-like relationships of mind-body-spirit and individual-family-community. I find that my osteopathic medical colleagues are less likely to view death as the ultimate enemy to be fought at any cost, which fits well with the Vietnamese view of birth and death as normal punctuation in the rhythm of life, whether human, plant, or animal.

I have found Vietnamese immigrants to be remarkably open about their wartime and refugee experiences. The Vietnamese hold no apparent bitterness about the War, even those who were maimed or suffered time in Communist-run reeducation camps after the 1975 "liberation" of Saigon. I

never cease to be riveted when immigrants share their amazing histories of wartime violence, internment, and dangerous boat trips almost nonchalantly, looking at me quizzically when I comment on their courage and strength.

I am delighted to see that osteopathic physicians are becoming so involved in caring for this large and precious immigrant population, bringing them the benefits of Western medicine while respecting, and even incorporating, some traditional Vietnamese beliefs. The Vietnamese have much to share with and teach us, as we have with them. Osteopathic medicine seems well positioned to help bridge this cultural and scientific divide.

Carmen K. Steigman, MD, MPH

Pathologist
Garden City Hospital
Garden City, Michigan

More on allopathic medical credentialing

To the Editor:

I am writing to express agreement with Miriam V. Mills, MD, "Wasn't A. T. Still an MD, too?" (JAOA 2001;101:68-69). Osteopathic medicine is not a cult; it is a modality of medicine. As such, its secrets, methods, and theories should not be kept hidden, but rather taught to all physicians—osteopathic and allopathic—willing to embrace them.

As I am a resident in an allopathic program, MD colleagues frequently request that I teach them osteopathic manipulative treatment and remark that they wish they had been taught this mode of therapy. I believe they represent a substantial portion of recent graduates and current allopathic medical students. To this extent, osteopathic medicine has achieved victory.

It is only a matter of time before manipulation theory and techniques are taught in

allopathic medical schools. If we enlist bold and visionary leaders who will establish standards for allopathic medical credentialing, then we can ensure the quality of their training and instill our osteopathic heritage and leadership. If, however, we remain "osteopathic only" in our philosophy and deeds, they will proceed without us, and we will have forever lost our unique position among the professions.

Brian A. Allee, DO

Family practice resident
University of Oklahoma
Tulsa, Oklahoma

All opinions expressed in JAOA are those of the authors and not necessarily those of the editors, the AOA, or the institution with which the authors are affiliated. Letters may be e-mailed to letters@aoa-net.org or they may be mailed to the Letters Editor, AOA, 142 E Ontario St, Chicago, IL 60611. No unsigned letters will be considered for publication.