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Letter writers must include their full professional title(s) and affiliation(s), complete address, day and evening telephone numbers, fax number(s), and e-mail address(es). Letter writers are responsible for disclosing financial associations or other possible conflicts of interest.

Although *JAOA* cannot acknowledge the receipt of letters, we will notify authors whose letters have been accepted for publication. Rejected letters and illustrations will not be returned to their authors unless a self-addressed, stamped envelope accompanies the submission of these materials.

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## Promoting Active Engagement with Osteopathic Principles and Practice in Interns and Residents

To the Editor:

I believe the specialty of internal medicine has been particularly neglectful of promoting training in osteopathic principles and practice (OPP) during the 36 months that we have our residents as a "captive audience." As the director for the internal medicine residency program at Grandview Hospital in Dayton, Ohio, I have struggled with the question of how to reintegrate osteopathic precepts with osteopathic practice.

Many osteopathic internal medicine programs are currently struggling to figure out how they will incorporate the required American Osteopathic Association (AOA) core competency for osteopathic principles (as shown in Required Element 3 of Core Competency 1 on the American Osteopathic

Association Program Director's Annual Evaluation Report<sup>1</sup>) into their curriculum. This struggle seems odd, however, as OPP is the cornerstone of the osteopathic medical profession.

Looking back, it occurred to me one day that during my years of postgraduate training, I had never been specifically asked to present structural examination findings or to describe my plans for using osteopathic manipulative medicine to treat a patient. Isn't that odd?

When I was a pulmonologist in training, I was asked, for example, to report breath sounds in a patient with chronic obstructive pulmonary disease or to report abdominal findings for a patient with gastrointestinal bleeding. I was never asked to report the one component of physical examination findings that is supposed to be common to every patient seeking the care of an osteopathic physician.

Of course, this is not to say that every osteopathic internal medicine res-

idency program fails to focus on this particularly osteopathic aspect of patient care, but I am suspicious that the number of osteopathic interns and residents who can say their training provided a different experience from my own is rather small.

In response, I have recently added two questions for housestaff during patient presentations. On the surface, they are rather simple questions, but their long-term implications can be profound:

- *What did you find on your structural examination?* and
- *What do you want to do about that?*

The first time osteopathic interns and residents are asked about structural examination findings, they are very nearly surprised. Typically, the first time, they don't have much of an answer. The second time isn't much different. However, the third time they are asked this question, the results are usually quite different.

In fact, the third time osteopathic interns and residents are asked about structural examination findings, not only are they ready to answer the question—they often begin offering information before being asked.

Why?

I think the answer is simple—expectations. Residents are *expected* to report wheezing. They are *expected* to report abdominal tenderness. Rarely are they *expected* to report rib motion in a patient with pneumonia.

The second question, about what to do in response to the findings, of course, automatically follows a response that indicates pathology during the structural examination.

These two questions, when used consistently, reset expectations among interns and residents and let them know that those in the profession *expect* that they will incorporate OPP at the same time that they provide the best of standard care.

As a practicing pulmonologist, I find that the respiratory system is a perfect model for demonstrating structure-

function relationships to students and for using the tools we were taught during our first years of osteopathic medical school.

What made this methodological shift so important to me? I believe that, as a profession, we need direction. I believe that the best possible outcome for the future of our chosen profession will come from rediscovering our roots.

Our patients want comprehensive, quality healthcare. I believe that using the particular tools that make us osteopathic physicians will help us deliver that kind of exemplary care.

For nearly 15 years, I had lost sight of that goal. Had it not been for a serendipitous encounter with Edward G. Stiles, DO, Professor and Chairman of OPP at Pikeville College School of Osteopathic Medicine in Kentucky, I might never have found it again. A lengthy conversation with Dr Stiles in June 2003 set in motion the machinery necessary for personal (and professional) change.

The conversation with Dr Stiles was an "osteopathic epiphany" for me, providing the mental link that allowed me to actively bring OPP back to my medical practice—and, as a result, back into Grandview Hospital's internal medicine residency program. Dr Stiles reminded me that structure-function relationships are part of a continuum between health, injury, and disease—they are not isolated events to be separated from the whole. Osteopathic manipulative treatment is not a stand-alone therapy; it is part of a treatment plan that maintains health and promotes healing.

It now saddens me that it took so long to discover what I always knew—that osteopathic physicians have something more than our allopathic colleagues to offer patients.

Sometimes small changes make a big difference. Perhaps these two questions will do much to move the profession toward "provid[ing]. . . students with scientific evidence and validation of core OPP in action by personal exam-

ple," as Drs Juhl and Ostrow called for in their recent letter to the editor ("Faith Versus Evidence: The Real Question in Osteopathic Medicine?" 2005;105:126–128).

By setting new expectations for osteopathic interns and residents, by adding these two simple questions to our interactions with them, perhaps we will also set in motion the machinery that will allow us to complete the vision of our founder, Andrew Taylor Still, MD, DO, who believed that the objective of the physician is to find health because anyone can find disease.

If we are successful in doing so, the osteopathic profession will make an even bigger difference in the future of healthcare delivery.

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### Reference

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### IM Ketorolac Versus OMT: Was Agent at Peak Analgesic Effect in JAOA Study?

To the Editor:

Tamara M. McReynolds, DO, and Barry J. Sheridan, DO, have written a thoughtful article titled "Intramuscular Ketorolac Versus Osteopathic Manipulative Treatment in the Management of Acute Neck Pain the Emergency Department: A Randomized Clinical Trial" (2005; 105:57–68). I have one concern about their conclusion, however, that osteopathic manipulative treatment (OMT) is as efficacious as ketorolac tromethamine injected intramuscularly (IM) when treating this patient population.

The authors have set the study's endpoint at one hour after treatment. However, official product information

from Roche Pharmaceuticals, as noted in the 2005 edition of *Physicians' Desk Reference*,<sup>1</sup> indicates that maximum efficacy of IM ketorolac is reached at two to three hours after administration.

McReynolds and Sheridan conclude that IM ketorolac, 30 mg, and OMT are equally efficacious at one hour post-treatment.

My question for the authors is as follows: *Is OMT equally efficacious with IM ketorolac, 30 mg, when the agent is at its peak analgesic effect, that is at 2 to 3 hours after administration?* To me, this is the more important question.

I would suggest that comparison of the two treatment modalities at one, two, and four hours posttreatment would have made a good study even better.

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### Reference

1. Chesanow N, Fleming H, eds. TORADOL (ketorolac tromethamine injection). Clinical Pharmacology. *Physicians' Desk Reference*. 2005. 59th ed. Montvale, NJ: Thompson PDR; 2005:2933.

### Response

Dr Coston raises an excellent question regarding the time to peak analgesic effect for ketorolac tromethamine injected intramuscularly (IM). The *Physicians' Desk Reference* (PDR) presents some inconsistencies with regard to the time required for the analgesic to reach peak effect in patients.

In the Clinical Pharmacology section under Pharmacodynamics, the PDR states, "The peak analgesic effect of TORODOL occurs within 2 to 3 hours and is not statistically significantly different over the recommended dosage range of TORODOL."<sup>1</sup>

In contrast, the Dosage and Administration section states, "The analgesic effect begins in ~30 minutes with maximum effect in 1 to 2 hours after dosing [intravenously] or IM. . . ."<sup>2</sup>

In addition, as provided in *Table 1* of the *PDR* listing, which provides approximate average pharmacokinetic parameters for Toradol, the  $T_{max}$  (time-to-peak plasma concentration) is  $44 \pm 29$  minutes.

We contacted Roche (Nutley, NJ) in March 2005 for clarification, and a spokesperson from Roche Professional Product Information (oral communication, data on file) provided the following information:

■ In the Clinical Pharmacology section under Pharmacodynamics, *peak analgesic effect*<sup>1</sup> refers to “the highest plasma level that occurs within 2 to 3 hours.”

■ In the Dosage and Administration section, *with maximum effect in 1 to 2 hours*<sup>2</sup> refers to the “maximum (best) analgesic effect of Toradol, which may occur anywhere from 1 to 2 hours.”

■ The time to peak plasma concentration is the “time of onset to peak plasma level, which occurs within  $44 \pm 29$  minutes.”

In our February 2005 study (“Intramuscular Ketorolac Versus Osteopath-

ic Manipulative Treatment in the Management of Acute Neck Pain the Emergency Department: A Randomized Clinical Trial.” 2005;105:57–68), we focused on the rapid relief of neck pain in the emergency department. We elected to observe the effects of single-dose IM ketorolac at a maximum observation time of 1 hour as other investigators have also done.<sup>3–9</sup>

We acknowledge that results may have differed if observation times had been extended to one, two, and four hours posttreatment as suggested by Dr Coston.

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## References

1. Chesanow N, Fleming H, eds. TORADOL (ketorolac tromethamine injection). Clinical Pharmacology. *Physicians' Desk Reference*. 2005. 59th ed. Montvale, NJ: Thompson PDR; 2005:2933.

2. Chesanow N, Fleming H, eds. TORADOL (ketorolac tromethamine injection). Dosage and Administration. *Physicians' Desk Reference*. 2005. 59th ed. Montvale, NJ: Thompson PDR; 2005:2936.

3. Bartfield JM, Kern AM, Raccio-Robak N, Snyder HS, Baevsky RH. Ketorolac tromethamine use in a university-based emergency department. *Acad Emerg Med*. 1994;1:532–538.

4. Veenema KR, Leahey N, Schneider S. Ketorolac versus meperidine: ED treatment of severe musculoskeletal low back pain. *Am J Emerg Med*. 2000;18:404–407.

5. Davis CP, Torre PR, Schafer NC, Dave B, Bass B Jr. Ketorolac as a rapid and effective treatment of migraine headache: evaluations by patients. *Am J Emerg Med*. 1993;11:573–575.

6. Duarte C, Dunaway F, Turner L, Aldag J, Frederick R. Ketorolac versus meperidine and hydroxyzine in the treatment of acute migraine headache: a randomized, prospective, double-blind trial. *Ann Emerg Med*. 1992;21:1116–1121.

7. Harden RN, Gracely RH, Carter T, Warner G. The placebo effect in acute headache management: ketorolac, meperidine, and saline in the emergency department. *Headache*. 1996;36:352–356.

8. Klapper JA, Stanton JS. Ketorolac versus DHE and metoclopramide in the treatment of migraine headaches. *Headache*. 1991;31:523–524.

9. Larkin GL, Prescott JE. A randomized, double-blind, comparative study of the efficacy of ketorolac tromethamine versus meperidine in the treatment of severe migraine. *Ann Emerg Med*. 1992;21:919–924.

## Correction

JAOA—The Journal of the American Osteopathic Association regrets the following errors.

Sucher BM, Hinrichs RN, Welcher RL, Quiroz LD, Laurent BF, Morrison BJ. Manipulative treatment of carpal tunnel syndrome: biomechanical and osteopathic intervention to increase the length of the transverse carpal ligament: part 2. Effect of sex differences and manipulative “priming.” *J Am Osteopath Assoc*. March 2005;105(3):135–143.

On page 137, under Dynamic Loading (Osteopathic Manipulation), the second sentence should have used reference 7 (Sucher BM, Hinrichs RN. Manipulative treatment of carpal tunnel syndrome: biomechanical and osteopathic intervention to increase the length of the transverse carpal ligament. *J Am Osteopath Assoc*. 1998;98:679–686) instead of reference 6.

On page 140, at the top of the second column, the two figure references appearing in parentheses are incorrect. Both parenthetical references should have directed readers to *Figure 9* and *Figure 10* instead of *Figure 6* and then *Figure 8*, respectively.

On page 140 and 141, for both *Figure 9* and *Figure 10*, the captions should have read: “Static stretch results with weight loading: Ligament elongation as a function of time for the weight trials. Results showed that prior application of [osteopathic manipulation (OM)] had little effect on the weight results for males (*Figure 9*), but a large and significant effect for females (*Figure 10*). Note the shift in baseline for the weights following OM in females indicating residual elongation carried over from the OM on the prior day.”

On page 143, the second sentence under Conclusion should have read, “The increase in TCA width, and therefore TCL elongation, is a much greater percentage of pin separation at skin level than prior calculations predicted” instead of “Widening of the TCA provides a much greater percentage of pin separation at skin level than prior calculations predicted.”