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Immediate Effects of Osteopathic Manipulative Treatment in Elderly Patients With Chronic Obstructive Pulmonary Disease

To the Editor:
We read with interest the May original research by Donald R. Noll, DO, and colleagues.1 We would like to suggest that patients with nonchronic conditions—or even healthy individuals—might have been better as study subjects for testing the immediate effects of osteopathic manipulative treatment (OMT). To expect a single application of OMT to produce a demonstrable effect in patients with chronic obstructive pulmonary disease (COPD) is rather ambitious.

In addition, readers will note that all study participants assigned to the OMT group in the Noll et al study1 did not receive the same treatment. Specific OMT techniques for somatic dysfunction found during structural examinations were administered to patients only “if applicable.” Therefore, each patient received some mixture of seven standardized OMT techniques commonly used for respiratory disorders.

We concur with the authors’ that the configuration of their manual treatment protocol may have contributed to the trial’s results. In other words, a single multitechnique session of OMT can produce measurable changes in pulmonary function parameters. We likewise agree with the authors that it would be impossible to know the individual contribution of each OMT technique to the final outcome in any given patient. Similar to the authors’ suggestion that the beneficial effect of one technique may have “cancelled out” the adverse effect of another, any interaction between somatic dysfunction treatments and the OMT protocol cannot be calculated. Given these confounding variables, it is intriguing that the authors1 reported their results as though the intervention group was a single homogeneous unit.

Furthermore, though we agree with the authors1 that chest wall compliance and diaphragm capacity decrease with age, we beg to differ with their claim that an aging population could become “more responsive” to treatment because of the physical effects of advancing age. In fact, musculoskeletal responsiveness has proven less efficient with age as a result of morphologic changes,2 with a reduction in soft tissue elasticity3 that leads to reduced outward recoil of the chest wall.4 Thus, it is logical to surmise that repeated sessions of OMT are required when managing musculoskeletal conditions in elderly patients—that is, the “dosage” of manual therapy needs to be increased to produce an effect that is achievable in younger patients with fewer applications.

As pointed out by the authors,1 manual treatment carries with it the potential either to help or to harm patients. The challenge facing all clinical researchers is to design study protocols...
and use techniques that maximize OMT benefits while diminishing OMT risks.

In support of the continued use of manual therapy for improving the functional mobility of the thorax, we would like to share our approach to treating elderly patients who have mild to moderate COPD (ie, forced expiratory volume in 1 second [FEV₁] <80% and ≥50%, respectively). Our approach involves the application of a series of manual treatment sessions during a 4- to 6-week period. Each session consists of a single soft tissue technique together with spinal manipulative therapy (ie, somatic dysfunction treatment)—and the intensity of these treatments increases with each session. Gradually increasing the intensity of the same treatment technique over successive treatment sessions is likely to circumvent the immediate adverse effects on airflow obstruction reported by Noll et al.1

We commend Dr Noll and his colleagues for their work in this field. We trust that they will continue to rise to the challenge of advancing osteopathic medicine’s contribution to the management of COPD.

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References

Response
I wish to thank Drs Engel and Vemulpad for their thoughtful comments regarding our May original contribution. It is always gratifying to learn more about the research being conducted overseas on the use of manual techniques.

It may be correct that persons with nonchronic conditions or healthy individuals are better choices for testing the immediate effects of osteopathic manipulative treatment (OMT). As we are all aware, the research that has been published in this area is so minimal that everything is open to speculation. However, the authors2 of one small study that was conducted with healthy subjects reported no changes in pulmonary function measures—except for a compensatory increase in tidal volume. This increase was thought to be related to lower respiratory rates in half of their 6 subjects.

Our study1 contributes to the literature by showing that a single multitechnique treatment session can cause immediate changes in pulmonary function in persons with chronic obstructive pulmonary disease, relative to a sham control—and that most of these changes were negative, suggesting an overall worsening of air trapping at 30-minutes posttreatment. It is also interesting to note that most patients in our study felt that they could breathe better when surveyed by telephone at 1-day posttreatment. Ambitious or not, our findings do show a demonstrable negative effect of OMT in patients with chronic obstructive pulmonary disease, though the clinical significance of these findings remains open to debate, and the long-term effects of OMT among such patients merit further investigation.

Unfortunately, there is no consensus on the best study design for OMT research. The treatment protocol used in our study1 was intended to be as homogeneous as possible while retaining the ability to target specific somatic dysfunction. By allowing for treatment to focus on specific somatic dysfunction unique to the individual, the protocol more closely reflects actual clinical practice—though with the tradeoff of some treatment variability among patients.

I wish to clarify that, for the standardized portion of the treatment protocol in our study, all subjects in the OMT group received the same seven standardized techniques. The standardized portion of the treatment session took approximately 15 minutes of each 20-minute treatment session. However, we did not intend to represent the results as though the intervention group was a completely homogeneous unit.

It would seem logical that an elderly person would need more treatments than a younger person to achieve the same effect. Because chest wall stiffness is a known age-related change, we said only that this change could result in a population that is more responsive to OMT. However, until more research is conducted, determining which population is truly “more responsive” to OMT is merely a matter of speculation.

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References