

The wide-angle lens: The post-pandemic research era

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Introduction

Last year, a patient came in who had recently recovered from COVID-19 infection. At least, she had recovered in the sense of overcoming severe symptoms and being free of fever for more than 72 hours. However, she still had significant residual problems, including loss of her sense of smell – anosmia. She mentioned this problem only in the interest of completeness, as it had been at least a month since I had seen her last. As is the case with many patients, her visit was mainly prompted by a musculoskeletal problem. Her primary complaint was low back pain. I found palpation and muscle testing evidence of cervical, thoracic, and lumbar subluxation, and adjusted as indicated.

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The damaged battlefield

I mention this encounter because it illustrates a scenario that will become increasingly common, even when COVID-19 no longer rages at pandemic levels. There will be millions of people with residual clinical problems after the acute infection has run its course – the so-called 'Long Haulers'. These are people who have won the battle against the virus, but the battlefield – the patient's body – is left damaged by the fight.

A 2021 meta-analysis by Lopez-Leon et al estimates 80% of COVID-19 survivors suffer from residual problems for weeks or months. (1) Many of these are non-musculoskeletal problems, including fatigue (58%), attention disorder (27%), memory loss (16%), dyspnea (24%) and digestive disorders (15%). The previously mentioned patient's symptom of anosmia is also quite common, afflicting an estimated 21% of Long Haulers.

It seems likely that Long Haulers will be part of the chiropractor's clinical population well into 2022, and probably far beyond. Most of them will undoubtedly present the way my patient did; with a musculoskeletal complaint typical to chiropractic practice, relegating mention of any long-hauler co-morbidities to an afterthought.



Orthodoxy vs Inquiry

It would be a shameful lost opportunity if chiropractic students and clinicians were influenced to ignore these co-morbidities as phenomena that have nothing to do with what responsible chiropractic practitioners do for a living. Unfortunately, that could be a consequence of the recent global summit concerning non-musculoskeletal disorders and chiropractic. (2) After adopting criteria that resulted in discarding the majority of published studies on the effects of spinal manipulative therapy on non-musculoskeletal conditions, Cote et al cited a total of six randomized controlled trials (RCTs). Based on their analysis of these few studies, they found no evidence for a beneficial effect of spinal manipulative therapy (including, but not restricted to, chiropractic adjustments) on non-musculoskeletal disorders. The authors then go on to urge governments, payers, regulators, educators, and clinicians to incorporate this conclusion in their decision-making.

It would be very unfortunate if this analysis of six RCTs by Cote et al were taken as the authoritative last word on the role of the chiropractic adjustment in helping those with non-musculoskeletal disorders. The authors themselves seem to caution against such misreading in their section on implications for future research. They remind the reader that their conclusions are based on a limited number of studies. However, a careful reader must drill deeply into the paper to find this warning. Undoubtedly, some governments, payers, regulators and even some educators and clinicians will either miss or choose to ignore this warning. Some of us are all too eager to use a selective reading of papers such as Cote et al in the establishment of a new orthodoxy. This same orthodoxy relies heavily on the concept that only RCTs constitute 'evidence', a gross distortion of the evidence-based practice movement as articulated by Sackett et al. (3) The distortion of the evidence-based practice concept has been deconstructed several times, most recently in this *Journal*. (4, 5)

The new orthodoxy boils down to a simple idea: The only legitimate concern of the chiropractic clinician is musculoskeletal pain; anything else is unscientific and not evidence-based.

When presented by trusted educators and regulators, this idea strongly attracts many chiropractic students and clinicians. Who wouldn't want to be on the side of reason, science, and evidence? If that means the autonomic and central nervous effects of the adjustment must be safely locked in the closet to avoid the anti-science label, so be it.

Clinicians who embrace this orthodoxy will undoubtedly narrow the way they assess their patients. As a result, these clinicians will meet the coming multi-faceted post-pandemic patients with curiosity dampened, convinced that delving into the non-musculoskeletal arena is an inappropriate incursion into someone else's business. This would not only be unfortunate for the clinician and patient in the short run. It could impoverish the scientific development of the profession going forward. It is the alert and curious clinician that cultivates the rich soil from which our research progress grows.

We must not allow orthodoxy to dampen the spirit of inquiry.

The Case Report: The Core Approach to the study of the Long Hauler

I would suggest that in the coming post-pandemic era – for that matter, any era – the well-executed case report is of the utmost importance. It offers our best opportunity to gather evidence about the non-musculoskeletal benefits of the chiropractic adjustment. While the case report lacks the fastidiousness of the RCT, it offers perspectives that the RCT does not. The narrative aspect of a case report reflects the in-depth understanding that is only possible in the one-on-one doctor-patient encounter. This level of understanding certainly tends to get lost in the RCT, where the individual patient is in effect a number (or series of numbers). Although much has

been written about the construction of a good case study already (6, 7, 8) some of my recent experiences have reminded me of the following points.

Heed patients' hints, especially at the doorknob

There was no reason to be prepared with outcome measures related to anosmia when the previously mentioned patient visited. Her main complaint was back pain, and her post-COVID comorbidities were not mentioned until the visit was underway, and then only in passing. However, through no effort of my own, an important clinical hint presented itself. The patient was about to leave, when she took a bit of hand sanitizer, and remarked that she could smell the fragrance. It wasn't until some time later that the implications of her statement finally penetrated my somewhat distracted mind: she had anosmia prior to the adjustment; post-adjustment, she had the ability to smell hand sanitizer.

It often happens that the most interesting aspects of a patient encounter rise out of comments they make after the encounter proper is over. When this happens to you, maybe you will be a bit quicker than I recently was in recognizing the significance of these 'doorknob conversations'.

Let the patients' hints guide your follow-up questions

Two days after the initial visit for this episode, I still had no anosmia-related outcome measures in my toolbelt. However, I did understand the importance of asking about this manifestation during her progress examination. She mentioned that she regained her ability to detect the flavor of garlic at her family's dinner table since the last visit. Since the perception of flavor is a complex combination of taste and smell, this dinner table experience confirmed that her olfactory sense was returning.

In the absence of a quantifiable outcome measure for olfaction, I was fortunate to have this '*olfaction of daily living*' data. My reading and thinking since that visit have suggested more incisive questions I might have used in addition to my shotgun-like, '*How is your sense of smell since the last visit?*' For example, one can ask a patient whether they have noticed changes in their enjoyment of any foods. Do they feel a need to season their food more to enhance the flavor? If they cook their own meals, have they had more than the usual incidence of burned pots and pans due to delayed notice of smoke?

I suspect that the Long Hauler will present us with many opportunities to elicit useful clinical information if we have the presence of mind to use artful questioning.

No lab? No problem

Not all outcome measures require specialized equipment. In regard to olfaction, Gupta et al found a simple ordinal scale from 0 (no sense of smell at all) to 5 (normal) demonstrated statistically significant correlation with more formal methods of testing, with a score of 0 indicating anosmia, 1-2 indicating moderate hyposmia, 3-4 correlating with mild hyposmia, and 5 indicating normal olfaction. (9) Now that I am aware of this, I will be better able to follow future patients with anosmia.

Considering that Long Haulers will be part of our practices for some time to come, it would not be a bad idea to familiarize ourselves with practical outcome measures for some of the common Long Hauler manifestations. For example, questioning about dyspnea can be enhanced with the single breath count test. (10) Reverse digit span is a useful outcome measure for attention deficit and short-term memory loss. (11)

In fact, these outcome measures may prove useful with or without long haul syndrome. For example, Giguere et al found measurable olfactory loss in 55% of concussion victims 24 hours post-injury. (12) Therefore, the ability to follow anosmia will be found useful for any practitioner who sees victims of slip-and-fall injuries, motor vehicle accidents, and sports injuries (in other

words, all of us in practice). The same may be said of clinical assessment of short-term memory, attention deficit, dyspnea, and the other common long hauler problems.

One case is a curiosity. Multiple cases form a pattern.

As a stand-alone set of observations, my anosmia anecdote is perhaps not worthy of much notice. However, while I have not yet seen chiropractic papers on COVID-related anosmia, there have been other reports of olfaction improving under chiropractic care. (13, 14, 15) Years ago in our own practice, a patient with chronic obstructive pulmonary disease (COPD) demonstrated evidence of improved olfaction during a tree pollen season of a severity that had previously provoked allergic anosmia. (16) When reporting your results with non-musculoskeletal post-COVID symptoms, don't be surprised if similar improvements have been reported by others. You are now positioned to contribute to an evidential pattern.

The symbiosis

When patients with long haul symptoms improve under chiropractic care, significant questions will occur to the thoughtful clinician. What is the likelihood that the patient's improvement was related to the chiropractic adjustment, as opposed to a spontaneous remission? If the response was a bona fide effect of the adjustment, what mechanisms could explain it from the point of view of peripheral or central nervous mechanisms? Is there anything about your case that suggests interaction between COVID and some other clinical problem (concussion, diabetes, COPD, allergy, anxiety/depression, etc.)? The greater is your ability to articulate these questions, the more likely is your report to attract the attention of researchers equipped to carry the investigation further.

The professional scientist and the clinician need not and should not distance themselves from each other. The late chiropractic historian, Dr. Joseph C. Keating, Jr., envisioned a lively two-way feedback between field practitioners and the scientific community:

'Small-scale clinical studies would provide the background information necessary to design larger university and chiropractic college-based clinical trials and would enable the field doctor to field-test the results of more elaborate studies. Feedback between college clinical laboratories and the field could help in maintaining a practical, clinical orientation in institutionally-based research.' (17)

The complex combination of somatic, autonomic, and central nervous manifestations we will undoubtedly see in the post-COVID era calls for the intellectual environment of robust symbiosis Keating envisioned.

Your restless potential

The Long Haulers will not have to be sought. We will not have to lure them with promises we don't yet know we can keep. They will come, and we will experience their clinical responses to chiropractic care. These experiences will be instructive.

Some of you reading this *Journal* are undoubtedly capable of appreciating your patients' hints, have the presence of mind to follow up through artful questioning and practical outcome measures, and possess the clarity of expression to report your results in a meaningful way. Your abilities may have languished in disuse until now. The coming post-COVID times will provide you with urgent focus for your restless potential.

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