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Letter to the Editor: Methodological Limitations and Selection Bias Undermine Certainty of Findings Relating Chiropractic to Spontaneous Intracranial Hypotension

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intracranial hypotension, central nervous system diseases, headache, neurologic manifestations, hiropractic manipulation, acute subdural hemorrhage

As chiropractors, we read the Fernando et al case report and review with great interest. The authors described a single case of spontaneous intracranial hypotension (SIH) occurring 2 weeks after spinal manipulation and reviewed 12 similar cases with suspected association to spinal manipulation.[1] The authors suggested that chiropractic manipulation is a cause of SIH, that there are insufficient data on the safety of chiropractic, that SIH presenting after manipulation is underreported, and that it is "essential" that a history of chiropractic manipulation be actively sought in all patients presenting with SIH. A review of the study methodology identified several limitations which weaken the validity of the authors' claims.

Most of the authors' conclusions relevant to chiropractic manipulation cannot be supported from a small sample of 13 included cases. In comparison to epidemiologic studies, case reports are not appropriate for determining causation or making best practice recommendations. Although pooling data from case reports is an accepted method, the authors did not adhere to a standardized evidence-based methodology.[2] Assessment of the authors' review using the Scottish Intercollegiate Guideline Network checklist[3] revealed it is of unacceptable quality (Supplemental file).

The review had questionable internal validity, as the authors did not describe an a priori research question (PICO or otherwise), carry out a comprehensive search, provide the eligibility criteria used, describe the selection or extraction process in adequate detail, or comment on the quality of included studies. Further, selection bias was demonstrated by only querying one chiropractic-specific term relevant to intervention, whereas spinal manipulation is also performed by physical therapists, osteopaths and other manual therapy providers. As a result, there is low certainty in the reported findings.

The authors stated there were insufficient data regarding the safety of spinal manipulation, but they did not cite a recent systematic review of 47 randomized controlled trials which did not identify any serious adverse events related to cervical spine manipulation.[4] The authors echoed that cases of SIH following spinal manipulation are underreported, however, their synthesis of cases did not provide the requisite epidemiologic evidence needed to support this claim.

We question the authors' assertion that clinicians must actively seek a history of chiropractic manipulation when evaluating patients with SIH, given that prior cases of SIH have been reported after numerous other benign activities, as well as issues with validity and certainty of evidence listed above. In addition, the authors do not make a compelling argument for why managing a patient with SIH following manipulation would be any different from managing a patient with SIH after any other physical activity.

Authors seeking to explore potential rare adverse events in relation to spinal manipulation should adhere to quality reporting guidelines, such as the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA),[5] and make conclusions consistent with the quality and certainty of evidence. Reviews with a small sample based on case reports should not make broad practice recommendations given their low certainty of evidence. Clinicians should refrain from altering practice habits based on this review.

Supplemental Material

Supplemental material for this article is available online.

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