

ICPA Research Director's Letter to the Editor of Pediatrics

To the Editor

In a recent issue of the journal *Pediatrics*, Vohra et.al. (1) performed a systematic review of the literature for articles that document adverse events associated with spinal manipulation of pediatric patients. It is the responsibility of every healthcare profession to address adverse events associated with their types of care for the safety and effective delivery of such a care. Vohra et.al. (1) are to be commended at their attempt to fill the “virtually non-existent” database on this aspect of children’s care. However, upon further examination of their article, issues brought forth as well as issues germane to the use of spinal manipulative therapy (SMT) in children require further comment.

Vohra et.al. (1) discovered 14 cases of “direct adverse events” associated with SMT in children. Ten of these cases involved a chiropractor. It is these 10 cases I would first like to address. Upon further examination of the cited references involving chiropractic and adverse events, what becomes apparent are the following. Vohra et.al. incorrectly applied their own adverse event classification scheme. The two cases (i.e., severe headache/stiff neck and acute lumbar pain) cited as a moderate adverse events in Le Boeuf et.al. (2) were in fact minor adverse events as they were self-limiting and did not require further medical care.

Of the 5 cases classified as severe adverse events involving chiropractic, 4 were immediately retrievable by this author for further examination. The article by L’Ecuyer (3) involved a 12-yr-old girl with a history of a fall “from her upper-bunk bed hitting her head” resulting in one to two frontal headaches per week. Furthermore, she was “accidentally crushed in a collision of several playmates from which she fell backward to the ground.” In between chiropractic care, she ‘fell from her bicycle hitting her head.” The case cited by Zimmerman et.al. (4) involved a 7-yr-old boy with recurrent headaches. What was not apparent in the paper by Vohra et.al. was that prior to attending chiropractic care, the patient suffered from “headaches without prodrome, on either side, once or twice a week , often following gymnastic exercises in which he attempted mid-air somersaults, landing on the occiput and cervical spine.” The article by Ziv et.al. (5) described a 12-yr-old female with osteogenesis imperfecta, a history of multiple fractures of the limbs and a sagging chin following a fall prior to chiropractic. Again, this information was not apparent in the paper by Vohra et.al. (1). The article by Shafir and Kaufman (6) attribute the patient’s demise to chiropractic due to a close

temporal association between the patient's visits to the chiropractor and neurological deterioration. We are also led to believe the same from Vohra et.al. (1). However, a closer examination of the paper by Shafir and Kaufman (6) indicate that the 4-month-old patient had an intraspinal mass prior to chiropractic SMT that may have compromised the blood supply to the tumor and his spinal cord. Furthermore, a pathologic examination of the lower cervical and thoracic portions of the tumor revealed mostly necrotic tissue. As one can plainly see from an examination of the cases cited by Vohra et.al. (1), attributing "direct adverse events" to chiropractic care is questionable given the pre-existing morbidities and/or histories of trauma. Furthermore, it would seem that Vohra et.al. (1) did not heed to their own comments that, "serious concerns regarding both the quantity and quality of these spontaneous reports limit assessment of causation." Hence, I take issue with their conclusion that "serious adverse events may be associated with pediatric spinal manipulation."

Of the 20 cases cited by Vohra et.al. (1) resulting in delayed diagnosis or inappropriate provision of chiropractic care; upon further examination of the references cited, they too require further comment. Vohra et.al. (1) violated their own study selection criteria of primary investigations/reports. The references cited by Vohra et.al. were Letters to the Editor or a textbook citing a medico-legal case that could hardly count as primary investigations/reports. Again, to make such bold remarks attributing delayed diagnosis or inappropriate provision of chiropractic care in these testimonials reflects a lack of appreciation for making cause and effect inferences, of which they seem to comment upon only when it suits their needs. To further postulate that this is due to a lack of sufficient training for CAM providers is unwarranted and egocentric.

Vohra et.al. (1) commented on the need for randomized clinical trials (RCT) and population-based samplings for providing or refuting causation between pediatric SMT and serious adverse events as well as developing risk estimates. Yet, they boldly comment on the risk factors that may predispose a child to an adverse event including (1) immaturity of the spine (2) rotational manipulation and (3) high-velocity spinal manipulation. Their 4 supporting articles for these comments are inappropriate in that they do not involve an RCT or a population-based longitudinal study, have questionable appropriateness in translating to the pediatric population or the cervical spine and is not as a result of an exhaustive review of the literature on risk indicators/factors on the use of SMT in children. An appreciation for the unique biomechanical features of the pediatric spine alone as well as the many available SMT techniques would lead one to suspect their naiveté on the use of SMT in children.

In closing, I would like to make one final point. Given that the literature search by Vohra et.al. (1) involved a 104 year time span and found only 10 cases

involving chiropractic care of questionable circumstances as well as indications that millions of visits are made by children to chiropractors – ceteris paribus – “all other things being equal” – it would seem more appropriate to conclude what we in the chiropractic profession have always advocated – that there lacks sufficient evidence to indicate that the use of SMT in children is harmful.

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References

1. Vohra S, Johnston BC, Cramer K, Humphreys K. Adverse events associated with pediatric spinal manipulation: a systematic review. *Pediatrics*. 2007 Jan;119(1):e275-83. Epub 2006 Dec 18
2. Le Boeuf C, Broen P, Herman A, et.al. Chiropractic care of children with nocturnal enuresis; a prospective outcome study. *J Manipulative Physiol Ther*. 1991;14:110-115.
3. L’Ecuyer JL. Congenital occipitalization of the atlas with chiropractic manipulations: a case report. *Nebr State Med J*. 1959;44:546-549.
4. Zimmerman AW, Kumar AJ, Gadoth N, and Hodges FJ. Traumatic vertebrobasilar occlusive disease in childhood. *Neurology* 1978;28:185-188.
5. Ziv I, Rang M, Hoffman HJ. Paraplegia in osteogenesis imperfecta. *J Bone Joint Surg Br*. 1983;65:184-185.
6. Shafir Y and Kaufman BA. Quadraplegia after chiropractic manipulation in an infant with congenital torticollis caused by a spinal cord astrocytoma. *J Pediatr* 1992;120:266-268.