

Cervical Spine Manipulation, Immediate Stroke, and the Diagnosis of Dissection: A Commentary on Cassidy 2008

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COMMENTARY

Cassidy et al. published a 2008 study entitled, *Risk of Vertebrobasilar Stroke and Chiropractic Care: Results of a Population-Based Case-Control and Case-Crossover Study*.¹ The objective of this study was to investigate the association between doctor of chiropractic (DC) visits and vertebrobasilar (VBA) stroke, while making comparisons to such events after visits with primary care physicians (PCPs). The authors found an increased risk of VBA stroke associated with both DC and PCP visits and concluded, “The increased risks of VBA stroke associated with chiropractic and PCP visits is likely due to patients with headache and neck pain from VBA dissection seeking care before their stroke. We found no evidence of excess risk of VBA stroke associated with chiropractic care compared to primary care.”¹

This study has been referenced to support that cervical spinal manipulation (CSM) does not cause stroke.² However, the authors state, “We have not ruled out neck manipulation as a potential cause of some VBA strokes”. “It might also be possible that chiropractic manipulation, or even simple range-of-motion examination by any practitioner, could result in a thromboembolic event in a patient with a pre-existing vertebral artery dissection.”¹

This plausible mechanism of causation of stroke from CSM has been noted by multiple chiropractic researchers,³⁻⁶ and there are multiple case reports of immediate post-manipulative stroke.⁷⁻¹⁸ However, there are no case reports of a thromboembolic event following cervical spine range-of-motion examination. The sudden neck movement associated with CSM is more likely to dislodge a loosely adherent vertebral artery thrombus

and result in a thromboembolic event.¹⁹

The chiropractic analysis of this study was designed taking into account that CSM can cause immediate stroke: “For the chiropractic analysis, the index date [the date of the hospital admission for the VBA stroke] was included in the hazard period [the time period between the exposure (DC visit) and the index date], since chiropractic treatment might cause immediate stroke and patients would not normally consult a chiropractor after having a stroke.”¹

However, the 0-1 day PCP visit cohort was excluded from this study. Therefore, the 0-1 day DC visit cohort and the 0-1 day PCP visit cohort could not be compared and contrasted. The 0-1 day cohorts warrant being contrasted, as these are the only cohorts in which an immediate thromboembolic stroke from cervical spine range-of-motion examination or CSM could occur. This lack of direct comparison is a substantial limitation of the study as regards the 0-1 day cohort, and the conclusion of this study as regards the 0-1 day cohort should be interpreted cautiously and put into clinical perspective.

The authors also concluded, “Our population-based case-control and case-crossover study shows an association between chiropractic visits and VBA strokes. However, we found a similar association between primary care physician visits and VBA stroke. This suggests that patients with undiagnosed vertebral artery dissection are seeking clinical care for headache and neck pain before having a VBA stroke.”¹ This also suggests that DCs and PCPs fail to diagnose VAD at a similar rate, even when the two most common symptoms of VAD, neck pain and headache, are present.²⁰ This finding has clinical implications for DCs and PCPs.

COMPETING INTERESTS

The author declares no competing interests.

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