

Australian Association of Musculoskeletal Medicine

Unpredictability of Cerebrovascular Ischemia Associated With Cervical Spine Manipulation Therapy

A Review of Sixty-Four Cases After Cervical Spine Manipulation

Scott Haldeman, MD, PhD, FRCP(C)^{*~}; Frank J. Kohlbeck, DC^{~±}; Marion McGregor, DC, FCCS(C), MSc[§]

From the *Department of Neurology, University of California, Irvine, the
~Associated Faculty, Southern California University of Health Sciences, the
±Department of Health Services, School of Public Health, University of California, Los Angeles, and
§Research Scientist, Richardson, Texas.

SPINE 2002;27:49-55

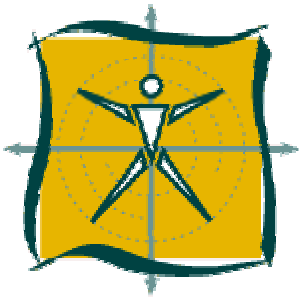
Study Design: A retrospective review of 64 medicolegal records describing cerebrovascular ischemia after cervical spine manipulation was conducted.

Objectives: To describe 64 cases of cerebrovascular accidents temporally associated with cervical spine manipulation therapy in terms of patient characteristics, potential risk factors, nature of complication, and neurologic sequelae.

Summary of Background Data: Approximately 117 cases of post manipulation cerebrovascular ischemia have been reported in the English language literature. Proposed risk factors include age, gender, migraine headaches, hypertension, diabetes, birth control pills, cervical spondylosis, and smoking. It is often assumed that these complications may be avoided by clinically screening patients and by pre-manipulation positioning of the head and neck to evaluate the patency of the vertebral arteries.

Methods: Three researchers using a uniform data abstraction instrument performed an independent review of 64 previously unpublished medicolegal records describing cerebrovascular ischemia after cervical spine manipulation. These cases were referred to a single physician for review over a 16-year period from across the United States and Canada. Descriptive statistics were calculated for characteristics of the patients and the complications. Means and standard deviations were computed for continuous variables. Frequencies and proportions were calculated for categorical variables.

Results: This study was unable to identify factors from the clinical history and physical examination of the patient that would assist a physician attempting to isolate the patient at risk of cerebral ischemia after cervical manipulation.



Australian Association of Musculoskeletal Medicine

Conclusion: Cerebrovascular accidents after manipulation appear to be unpredictable and should be considered an inherent, idiosyncratic, and rare complication of this treatment approach.

Key words: complications; manipulation therapy; vertebral artery dissection

Spine 2002;27:49-55