Dynamic Chiropractic

CHIROPRACTIC (GENERAL)

The Safety of Cervical Manipulation: Putting Stroke Risk in Perspective, Part 2

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To date, the assessment options for vertebrobasilar artery risk have significant drawbacks and as a whole have been unable to identify any particular factor that is useful for screening.[61-62] Provocation tests in particular are problematic in that in several aspects, they replicate the risks associated with cervical manipulation by requiring the placement of the head and neck in extreme extension and rotation.[63] False negative findings compared to angiograms have been reported;[64] reliability and validity have not been reliably tested;[62] and the suggestion has been made that these tests be de-emphasized.[65] In the midst of this disorder, determining homocysteine levels as a predictor of arterial fragility seems to be a plausible, rapid and inexpensive procedure that is no more invasive than a routine blood glucose determination.

A more extensive discussion of spontaneous arterial dissections, the proposed involvement of homocysteine, and means to determine homocysteine clinically has been published elsewhere. In addition, there is evidence presented to suggest that homocysteine levels may be lowered by folate, raising the possibility that a commonly available vitamin might be of utility in forestalling or preventing a potentially life-threatening condition.[66]

Cerebrovascular Accidents and Manipulation: Risk Factors to Consider

Although symptomatology of neck pain may mimic that of an incipient or ongoing VAD, the primary signal of arterial distress is a sudden onset of headache or neck pain patients often report is unlike any experienced previously. Signs and symptoms of actual vertebrobasilar ischemia that should be regarded as further suggestions of an impending vertebrobasilar artery event are the following:[67]

- Diplopia or other visual problems
- Dizziness: vertigo or lightheadedness
- Drop attacks
- Dysarthria
- Dysphagia
- Ataxia of gait
- Nausea, possibly with vomiting
- Numbness
- Nystagmus

When considering a patient for neck manipulation, a number of risk factors should be weighed carefully before treatment is considered:[67]

- Dizziness, unsteadiness, giddiness, and vertigo
- Age <45
- Migraine
- Connective-tissue disease:

- Autosomal dominant polycystic kidney disease
- Ehlers-Danlos Type IV
- Marfan syndrome
- Fibromuscular dystrophy
- Recent infection, particularly upper-respiratory

Other Adverse Events

Despite numerous reports that have suggested spinal manipulation is capable of causing disk herniations and cauda equina syndrome (CES),[68-71] estimates of the frequency of such events arising from spinal manipulations performed for any reason range from 1 in 1 million24,[71] to 1 in over 100 million.[72-73] A more recent systematic review of prospective and retrospective studies and review papers yielded a risk estimate of worsened disk herniation or CES to be less than 1 in 3.7 million, three to five orders of magnitude less than such accepted means of treating lumbar disk herniations as the use of NSAIDs or surgery.[74]

More minor and transient; events attending chiropractic manipulation have been reported in the literature. These have been of short duration, relatively infrequent, and rarely severe. A sampling of such incidents includes:

- Increased neck pain or stiffness[75]
- Headache and radiating pain[76]
- Lightheadedness, dizziness, fainting (incidence 16/1,000)[15]
- Headache, numbness, tingling in upper limbs (incidence 4/100)[15]
- Severe headache (case reports, pediatric)[76]
- Mid-back soreness (case reports, pediatric)[76]
- Musculoskeletal soreness[77]
- Tiredness, nausea, ringing in ears (incidence <8 percent)[77]

Flaws in the Medical Literature

While much of the medical literature attempts to establish an association of spinal manipulation with adverse events,[1-6,78] it fails to fulfill the basic principles of causality established over 40 years ago by Bradford Hill.[79] What is required to demonstrate true epidemiological causation is the satisfaction of all the following: strong associations with a diagnosis which is consistent across samples and groups' temporal relationship of treatment and adverse event; biological plausibility; lack of conflict with alternative explanations; and demonstration that reduced exposure to the putative causal agent results in reduction or prevention of the adverse event.

In terms of the most severe events – the VADs – seven common flaws can be identified in the bulk of the medical literature that attempts to link VADs with spinal manipulation:

- Failure to disclose that the majority of VADs are spontaneous, cumulative or caused by factors other than spinal manipulation (See Table 3 in part 1 of this article).
- Failure to disclose the potential benefits of the procedure, as must be done in reporting true risk-benefit ratios.
- Failure to place the risks of manipulation in the context of those produced by other medical treatments or lifestyle activities (Table 2 in part 1).
- Failure to report the actual frequency of spinal manipulations administered.
- Failure to account for the possibility that patients experiencing CVAs are reported more than once.

- Failure to report the rates of CVAs following manipulation by parties other than licensed chiropractors.[37,67,80]
- Blanket assumption that patients undergoing adverse events following a manipulation would fail to report such instances to either the attending chiropractor or appropriate authority.

The one major omission in numerous case-control studies which suggested that the incidence of strokes was greater in patients who had recently undergone spinal manipulations by a chiropractor compared to individuals who had not[5-6] has thankfully and finally been addressed. In the Cassidy, et al., study of 818 VBA strokes in a hospitalized population of over 100 million person-years, the researchers demonstrated that strokes were just as likely to occur if patients with headache or neck pain visited a primary care physician versus a chiropractor, suggesting that the cause of the stroke could not be plausibly associated with any element unique to chiropractic. More likely, the stroke was already in progress when any health care intervention was sought.[81]

To amplify this point even further by way of demonstration, a recent case-control study of a patient with a nontraumatic episode of head and neck pain revealed the benefits of taking a careful case history before ordering any intervention. It was found that the patient displayed sufficient warning signs to warrant a delay in administering spinal manipulation. Within a week of watchful waiting, the patient experienced a CVA anyway. Again, the implication is that factors resulting in a stroke were in progress at the time the patient first sought consultation from a health care practitioner.[82]

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