

## Chiropractic and Stroke: What Are Our Responsibilities?

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### ABSTRACT

Over past few decades there have been looming critiques of chiropractors possibly causing strokes due to cervical manipulation and/or adjusting. As physicians we have had profound concerns a therapeutic intervention we could render may have iatrogenic implications for a patient. Recent research has illustrated that chiropractic cervical treatment has *not* been implicated in causing strokes. Apparently any relationship is more coincidental since incidental movements of the neck, such as just turning to look in a car, might be sufficient to cause a stroke in a susceptible patient. But, before we can breathe a sigh

of relief we now have the responsibility to be aware of a stroke in progress or possible warning signs that might pre-stage a stroke. Since many times the same signs of an impending stroke (head or neck pain) are the same signs that lead a patient to seek chiropractic care. Therefore, this makes the chiropractic clinical encounter important not just from a treatment point of view but also a history taking and diagnostic opportunity to save our patient's life.

**Key Words:** *Stroke, manipulation, chiropractic*

### Introduction

I have attempted to understand the current dilemma, which draws an association between cerebrovascular arterial (CVA) events and cervical spine manipulation. I am clearly not an expert in this field but have attempted to search databases, read various research studies, and attend multiple chiropractic research conferences that have discussed cervical manipulation and stroke risk.

So far what has clearly been shown is that since the risk is so small any possible study to properly evaluate the phenomena would take about 25 million subjects. The reason being the incidence appears to be so rare and it is hard to differentiate between causal and coincidental factors. The coincidence factor is rare also; to the degree that research is showing in some cases a visit to a chiropractor might even reduce the incidence of stroke as compared to common incidental or trivial causes occurring in activities of daily living.

So what are we at this time as chiropractors left with? Apparently as healthcare practitioners we are responsible to differentiate when a patient presents in our office whether or not they might be having a stroke in progress and/or making sure they are referred both immediately and appropriately. Part

of the difficulty is that many factors associated with stroke in progress are reasons why patients seek our care. What are some factors that we can use to differentiate patient care and the need for referrals?

Be cautious to watch for patient dizziness, drop attacks, blurred vision, difficulty speaking, swallowing, or walking, along with nausea, numbness, and nystagmus. Since a subset of patients treated by chiropractic care can receive relief from the above symptoms what is important in this differential diagnosis is the mix of all of these symptoms in one patient.

We need to be concerned when a patient tells us "I have a pain in my neck and/or head unlike anything I have ever had before." Also we will need to increase any investigation if the patient has posterior head pain that is throbbing, steady or sharp, called a "thunderclap headache."

Another red alert for a chiropractor should be exercising extreme caution with **women reporting a new onset (within the past year) of probable migraine with visual aura, who smoke, and take oral contraceptives.**<sup>1</sup> It might be prudent to consider investigating co-treatment with a neurologist, if clinically indicated. A Stroke Prevention in Young Women Study confirmed:

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1. Risk for first-ever ischemic stroke was highest among women who reported new onset (within the past year) of probable migraine with visual aura.
2. Women who had probable migraine with visual symptoms who also smoked and used oral contraceptives had seven times the risk of stroke than women who had probable migraine with visual symptoms alone.
3. In this study the group that had probable migraine with visual aura, who smoked, and used oral contraceptives had a 10-fold increased risk for stroke compared with women with no history of migraine, who did not smoke or use oral contraceptives.<sup>1</sup>

Since the chiropractic profession has been focusing on how to be aware of a CVA event in progress and how to prevent such an occurrence, another factor in prevention and awareness might be found by current research indicating the relationship between cholesterol levels and vascular events.

#### *Current Trends in Vascular Health*

Since the chiropractic profession has been focusing on how to be aware of a CVA event in progress and how to prevent such an occurrence, another factor in prevention and awareness might be found by current research indicating the relationship between cholesterol levels and vascular events.

The direction of vascular health and prevention seems to be towards issues of vascular inflammation and TC/HDL ratios<sup>2</sup> and not so much on lowering total cholesterol levels. Therefore some markers such as homocysteine<sup>3-5</sup>, c-reactive protein<sup>6,7</sup>, and clinical indicators of precursors of vascular inflammatory processes<sup>8</sup> may offer a window into a patient's potential cardiovascular health. There is even some suggestion that the positive affects of statin medications are associated with their ability to reduce vascular inflammatory processes<sup>9</sup> and not related to their affect on cholesterol. So far that leaves us with interventions that offer low risk such as exercise<sup>10,11</sup>, low inflammatory diets<sup>12</sup>, and increasing omega three supplementation<sup>13</sup>. All of which would seem to be the recommended first line in treatment and prevention of possible vascular events.

But are we just deluding ourselves as chiropractors by saying things we want to hear and not taking responsibility for our possible cause of vertebrobasilar artery (VBA) stroke?

As physicians we have the duty to at least do no harm to our patients. We need to make sure by using an evidence based approach analysis, with an unbiased eye, whether or not our interventions are safe.

#### *Current Research*

So what does the current research tell us? The most recent powerful study "Risk of vertebrobasilar stroke and chiropractic care: results of a population-based case-control and case-crossover study," published in Spine

(journal) on chiropractic and stroke by Cassidy et al concluded that, "vertebrobasilar artery (VBA) stroke is a very rare event in the population. The increased risks of VBA stroke associated with chiropractic and primary care physician visits is likely due to patients with headache and neck pain from VBA dissection seeking care before their stroke<sup>14</sup>." They "found no evidence of excess risk of VBA stroke associated with chiropractic care compared to primary care<sup>14</sup>."

A groundbreaking study was conducted to determine if vertebral artery dissection (VAD) and stroke are found following chiropractic office visits as part of the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders. According to the Task Force President Scott Haldeman, DC, MD, PhD, looking at the association between chiropractic office visits and the incidence of vertebral artery strokes. "current research suggests that dissections are probably multifactorial in origin."<sup>15</sup> He continued that "They appear to occur in a person with a genetic predisposition to arterial dissection. They also appear to require a second factor such as viral infection or possibly estrogen. They can then be triggered by a minor head movement, including activities of daily living, an adjustment or an examination of the neck."<sup>15</sup>

Corroborating Haldeman's vascular related findings Haneline and Rosner determined that "the analysis of cervical artery dissection (CAD) risk factors is confusing, however, because many people are exposed to mechanical events and known pathophysiological associations without ever experiencing dissection. No cause-and-effect relationship has been established between cervical spine manipulation and CAD, but it seems that cervical manipulation may be capable of triggering dissection in a susceptible patient or contributing to the evolution of an already existing CAD. Despite the many risk factors that have been proposed as possible causes of CAD, it is still unknown which of them actually predispose patients to CAD after cervical spine manipulation."<sup>16</sup>

In another related study they sought to "estimate the risk of serious and relatively minor adverse events following chiropractic manipulation of the cervical spine by a sample of U.K. chiropractors. The "data were obtained from 28,807 treatment consultations and 50,276 cervical spine manipulations. There were no reports of serious adverse events. They concluded that, "Although minor side effects following cervical spine manipulation were relatively common, the risk of a serious adverse event, immediately or up to 7 days after treatment, was low to very low."<sup>17</sup>

Paul Shekelle from the Rand Corporation commented that the article by Thiel et al "is a good first step at trying to build the evidence base for one of the most vexing concerns about cervical spine manipulation, the possibility of serious adverse events. What's needed now is for possible adverse events of cervical spine manipulation to be gathered the same way it is for adverse events of surgery: on every patient and every clinician. Then we'll really start to understand just how low the risk might be."<sup>18</sup> While a patient with head and neck pain will not usually chose to do nothing for their discomfort of one of the most common options is usually over the counter pain non-steroidal anti-inflammatories (NSAIDS).

Similarly relating to low back pain, non-steroidal anti-inflammatory (NSAIDS) have not been found any more effective than spinal manipulation for the treatment of neck pain.<sup>19</sup> In fact the research has shown that spinal manipulation is safer by as much as a factor of several hundred times compared to the use of NSAIDS.<sup>20</sup> One concern is that no matter how safe a procedure might be if it offers no discernable benefit then any risk is unwarranted. Manual therapies such as chiropractic have been found to be as effective as NSAIDS<sup>21</sup> and even more cost effective when compared to physiotherapy or general medical care.<sup>22</sup>

From the conclusion of a study by Rubinstein et al they found that with chiropractic care, "Adverse events may be common, but are rarely severe in intensity. Most of the patients report recovery, particularly in the long term. Therefore, the benefits of chiropractic care for neck pain seem to outweigh the potential risks."<sup>23</sup>

#### *Evidence-Based Paradigm*

So as we enter a new evidence based age of chiropractic we need to be aware of warning signs of a possible stroke in progress and specific warning signs:

1. Patient dizziness, drop attacks, blurred vision, difficulty speaking, swallowing, or walking, along with nausea, numbness, and nystagmus. Also any grouping of these signs with a patient having had a history of an infection,<sup>24,25</sup> particularly an upper respiratory tract infection should heighten alertness for the doctor.
2. If a patient says "I have a pain in my neck and/or head unlike anything I have ever had before." Also we will need to increase any investigation if the patient has posterior head pain that is "throbbing, steady or sharp."
3. We need thoroughly to investigate young women patients who report a new onset (within the past year) of probable migraine with visual aura, who smoke, and take oral contraceptives.
4. Blood laboratory analysis showing increased levels of c-reactive protein, homocysteine, and LDL versus HDL warrant dietary modifications and exercise as well as in unresponsive cases of allopathic cotreatment.

While the research is saying that chiropractic adjustments are not a likely cause of cerebrovascular arterial (CVA) events, cervical artery dissection (CAD), or vertebrobasilar artery (VBA) stroke, it is saying that as physicians we need to be on the alert for patients presenting with specific symptoms indicating a possible stroke may be in process.

Since many times the same signs of an impending stroke (head or neck pain) are the same signs that lead a patient to seek chiropractic care this makes the chiropractic clinical encounter important not just from a treatment point of view but from a history taking and diagnostic opportunity to save our patient's life.

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