

LETTERS TO THE EDITOR

To the Editor,

Dr. Cohn's contribution (*A Review of the Literature Regarding Stroke And Chiropractic*, J.V.S.R., 4(3), 2001) is most timely. He points out that the recent literature would appear to support the prevalence of CVAs in chiropractic as being somewhere between 1 in 1 million and 1 in 2 million and this may eventually indeed be shown to be the case. In fact a recent review of the literature in the Canadian Medical Association Journal¹ put the figure at 1 in 5.85 million cervical manipulations, describing the association as "...both small and inaccurately estimated". This contrasts with the estimates derived from surveys of neurologists² which vary between 1 in 500,000 and 1 million.

In any event, it is most encouraging to see the chiropractic community participating in research with a view to determining the safety of cervical manipulation and I am sure that we in the medical community would encourage any movement of the chiropractic establishment towards evidence-based scientific practices. The next step in this direction will be to acquire more accurate data and to develop sufficiently powerful studies to address the safety and efficacy issues associated with this practice.

However, Dr. Cohn's review contains a substantial number of misleading and unsubstantiated assertions which should be corrected. Among them are the following:

1. Medicine, "... bases its treatment on the philosophy of allopathy". Not true. We simply look for the best objective evidence that treatment is effective and safe. We are highly suspicious of anecdotal evidence that cannot be backed up by randomized controlled trials of adequate power and quality, and surveys of patient satisfaction. Both can be highly misleading. We always maintain a healthy scepticism, particularly of established treatment modes and those with a financial interest in a particular outcome.

2. Dr Cohn attempts to demonstrate the safety of chiropractic (sic) by contrasting the incidence of iatrogenic mortality associated with chiropractic and medicine. Unfortunately, he fails to point out that his conclusions are invalid because the chiropractic and medical cohorts he chooses are not comparable. How many of those submitting themselves to chiropractic in the studies he cites were suffering from life-threatening conditions? Few, I suspect. How many in the medical cohort would have died had they not received treatment? Without knowing the answers to these questions and many more, it is simply not possible to draw any conclusions about whether chiropractic is safer than medicine. We all have our share of the "worried well" and those suffering from relatively benign self-limiting diseases sitting in our

waiting rooms. It's pretty obvious though that chiropractors have relatively more than do physicians.

3. "Only 15% of all medical procedures have been found to be supported by any literature at all and only 1% of that literature has actually been deemed scientifically rigorous" and "...appendectomies which have a death rate of 1 in 74....". The literature fails to support either observation. In fact there is excellent data indicating that approximately 85% of what physicians do as physicians is evidence-based.³ I would recommend this paper to Dr. Cohn and your readers as being a thorough assessment of "the evidence for evidence-based medicine".

Of the 39 references Dr. Cohn managed to find but one. The overwhelming majority of medical procedures have been quantitatively rated on the quality of supporting evidence. The few exceptions tend not to be suitable for such trials: applying tourniquets to bleeding vessels being an example. In truth, appendectomies are not particularly dangerous, (and Dr. Cohn fails to provide any reference here: did he make up the 1 in 74 mortality rate?). A far more plausible and accurate figure could have been obtained from a number of recent studies, some of which he and his peers who apparently reviewed his article should have been aware of. One⁴ looked at the mortality rate among 4950 patients who underwent surgery for appendicitis. The death rate was 1 in 1250, even though high-risk patients with co-morbidity were included.

Prior to surgery for this condition the mortality rate was closer to 25%. Does Dr. Cohen advise his own patients against appendectomy because it is too dangerous? If he believes his own statistics he surely must do so.

It may eventually be demonstrated that neck manipulation is a relatively safe procedure. Dr. Cohn's review however, fails to provide the material on which such a judgement can be made.

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Dr. Cohn Responds:

Dr. Hammer's response to the article that was published in *JVSR* "A Review of the Literature Regarding Stroke and Chiropractic" was commendable. Many Medical Doctors would probably not have had the interest to read a chiropractic journal, no less respond to one. Unfortunately, I believe that Dr. Hammer has misunderstood some of the points I made in the review.

1. In my review I made the point that medical doctors typically fall into the allopathic model. Dr. Hammer vehemently opposed this idea. Bringing up this point was not meant as an insult. In fact, there are some chiropractors that fall into the allopathic model as well. According to *Mosby's Medical Encyclopedia*, allopathy is the treatment of symptoms and disease; the example cited by *Mosby's* is administering an antibiotic for a bacterial infection. This is not a bad thing; it is just different from the vitalistic approach of traditional chiropractic. The objectives of traditional chiropractic are to remove interference from the nervous system so that the body is able to react to the environment more efficiently and more effectively.¹ Sometimes this results in an increase in the intensity of a person's symptoms (the body's way of repairing and cleaning itself). Allopathy is the treatment of symptoms ranging from giving an antihistamine to someone with sinus congestion to stretching a tight muscle. Regardless if the treatment is effective, safe or thoroughly tested the intent is to treat and counteract the symptom and by definition is allopathy.

2. Dr. Hammer seemed to be under the impression that I brought up iatrogenic mortality to defend the safety of chiropractic. The true reason I brought up iatrogenic mortality was to offer a different perspective, not to compare the safety of two completely different professions. I also wanted to pose the question, "Why is there so much scrutiny of chiropractic and so little scrutiny of medicine?" I am well aware that medicine typically deals with people in more acute situations, and should reasonably have a higher death rate. However, the rate of iatrogenic deaths (those deaths caused by medical treatment) is extremely high while the death and injury rate proposed to be caused by chiropractic is extremely low.²

In demonstrating the safety of chiropractic I raised a number of points. These points focused on the effects of rotation, extension and a spinal adjustment or manipulation on the blood supply to the vertebrobasilar arteries. The risk of strokes in the general population was also compared to that of people who receive any type of spinal manipulation—including chiropractic adjustments. I pointed out that many studies show that vertebrobasilar blood flow is in no way affected by neck extension, neck rotation or even by a cervical spine adjustment or manipulation.³⁻⁸

I also discussed that many of the studies that had originally claimed that extension, rotation and adjustments or manipulations affected the vertebral arteries were performed on animals, and that the authors extrapolated and generalized their outcomes to be true for humans.⁵ The authors of these studies later found these movements to have no clinical effect on humans.⁵ I discussed random, clinically controlled double-

blinded studies that utilize doppler ultrasound which show that there is no change in the blood flow of the vertebral arteries during different head positions or even during or after an adjustment or manipulation.⁷ Evidence also shows that there is not an effect on the vertebral arteries sufficient to cause an injury or embolus to break loose which would be the causal mechanism for a stroke.⁷

The theory that a cervical adjustment or manipulation may cause a stroke from the carotid arteries has been thoroughly ruled out in the literature.⁹ The literature demonstrates that there is no change in blood flow in the carotid arteries with any neck position or during or after an adjustment or manipulation, and therefore these actions have no effect on the blood vessel.⁸ A great deal of the literature suggests that these same actions have no effect on the vertebral arteries either.^{3,4,5,6,7,10} The literature clearly demonstrates that there is no basis for any correlation between stroke and spinal manipulation or a chiropractic adjustment.

I also compared the rates of strokes that were related to chiropractic adjustments and spinal manipulations to the rate of strokes in the general population. I cited 15 review of literature studies that showed an average of 1 stroke to 7,825,477 adjustments or manipulations.^{4,9,11-18} This ratio should be compared to the incidence of stroke in the general population, which is approximately 1 in 447.3.^{18,19} Dr. Hammer addressed a statistic that was taken from a single survey of neurologists in California. This study calculates the risk of stroke caused by manipulations or adjustments to be 1 in 500,000. Even if we were to use this statistic, the general population would still be at a much higher risk than those people that receive any type of spinal manipulation including chiropractic adjustments.

3. In response to the statistic cited in my review stating 1% of all medical procedures are scientifically sound, Dr. Hammer responded "that according to Imrie R. in "Therapeutic Medicine" up to 85% of what physicians do is evidence-based". However, according to the *British Journal of Medicine*, only 1% of that evidence is scientifically sound.²⁰ This means that although many procedures have been tested or are effective that only about 1% are examined through rigorous scientific evaluation.²⁰ I originally brought this point up to show the flaw in our society's current perception of medical doctors being at the pinnacle of the scientific community, when this is clearly not the case. Medicine is not an exact science, and the medical community should not hold other professions to the highest levels of scientific scrutiny if it is self-admittedly failing to achieve this standard itself.

The reason that there was only one citation in support of this point was its minor role in this discussion and the fact that articles discussing the scientific validity of medicine are not common. Dr. Hammer pointed out that the statistic "1 in 74 appendectomies are fatal" was not supported by the literature or cited in the paper and asked if I had made up the statistic. It appears that there was a printed error in the journal. The statistic "1 in 50.4 people that die from spinal fusions" should have actually been 1 in 50 with the citation for that sentence being #4, the source of both of these statistics.¹⁴ Dr. Hammer

also asked if I warn my patients of the dangers of appendectomies. Not only do I warn my patients, friends, family and acquaintances of the dangers of all surgeries, but I also warn them of the dangers of all medications. I explain to them that sometimes these things are necessary, however it is preferable to take proactive steps to avoid allowing their health to degenerate to the point where they require these types of interventions.

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To the Editor

As usual, you make a great point regarding the issue of perspective and chiropractic's relative place in the risk of receiving health care¹ in your review of the article by Cohn² entitled, *A Review of the Literature Regarding Stroke and Chiropractic*. Having returned from the RAC in Kansas where I saw you and many others it became clear from a lecture³ by Dr. Rosner of FCER that chiropractic's place in the realm of risk is bizarrely low.

Ironically if my memory serves me he presented information at the Sacro Occipital Technique Organization - USA Clinical Symposium⁴ that related chiropractic care causing death on par with a lightning strike, and less common than events that can take place in a common household. In some studies, it even seemed that walking around and living your life was more fraught with danger than receiving chiropractic care. Much of this seems to be based on how we look at the statistics.

When any reasonable mind looks at the statistics what remains clear is that chiropractic is as relatively safe a procedure as any around. On the other hand, what also becomes clear is that there is significant risk in most medical procedures from medicating to surgery. It would seem obvious, that any conservative alternative would be explored prior to interventions that have risk, such as those associated with medicating or surgery. When it comes to conservative care with low risk I can't help but think of chiropractic care.

It would seem that to focus on the detrimental effects of chiropractic care in the extreme could only function if one or both of the following premises are taken:

1. Chiropractic is unscientific, unproved, on the level of a "placebo," and essentially of no value for patient care. Therefore, any negative side effects are profoundly important to report and emphasize, since the benefits are only negligible at best.

2. There is a financial interest or profound ignorance, which would allow the modulating of data to suit a particular mind set that seeks to paint chiropractic as an unsafe form of health care.

As I review number one and two I have a difficult time advocating either position. I have found that medical professionals with whom I have spoken on this topic seem mostly sincere and generally misinformed. However, from a review of a recent article authored by Morely, Rosner, and Redwood,⁵ it became clear that there are motivated individuals in high positions of research authority who have a "vendetta" against chiropractic.

As hard as I try to be fair minded, even to the extreme, a casual reading of the above article illustrates that there was purposeful intent to impugn chiropractic and chiropractors. Sadly, it was also clear that the peer review process and high stature of some journals are not immune to misrepresentation, misquoting, and misstating, all to support a premise that chiropractic is unfounded or unsafe.

Education of the public and professionals is the only venue I see at this moment. The real issue is that the public doesn't

really know, trusts authority, and hopes that those in the health care field focus on their health and not their pocket book.

Sincerely,

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Chiropractic and Stroke: Red Herrings, Methodological Incompetence and Unethical Bias

To the Editor

I would like to comment on the issue of stroke, the recent stroke study, and the responses of many of the chiropractic organizations throughout North America. Disappointingly the study itself represents an enormous red herring and, unfortunately, many of the responses indicate that we have taken the bait. The stroke study is biased pseudoscience. Not because it is negative against chiropractic but because it has a flawed design and a biased hypothesis. Let me explain. They are calling the study prospective and I have even heard chiropractors argue this point. This is ridiculous. This study is *not* prospective, it is retrospective. People are not even included in the study until *after* they have had a stroke. After they have had a stroke it is then established whether or not they have been to a chiropractor in the preceding weeks and months. This represents enormous bias and is clearly retrospective in design. A prospective study would include all of the subjects in the study and then measure how many had strokes and how many did not. The main variables in this study are stroke and manipulation and both have occurred before any of the subjects are ever included in the study. Please do not refer to this as a prospective study.

Now let's examine the bias. The evidence clearly indicates that there are more cases of spontaneous or non-traumatic cases of artery dissection than traumatic and, more importantly, that there are many causes of vertebrobasilar artery dissection. The available evidence also clearly

illustrates that seemingly benign activities such as toweling off your hair, leaning your head back to have your hair washed in a salon, and turning your head around while backing up your car can cause dissection of the vertebral arteries. If this was an unbiased study, or a properly designed study, the researchers would also be asking whether or not the victims of stroke had undertaken any of the plethora of other activities cited in the literature as causing vertebrobasilar artery dissection. What they are doing is assuming (or rather deliberately trying to suggest) that anyone who has had a stroke and been to see a chiropractor represents a case of stroke caused by a neck manipulation. This hypothesis is flawed, indefensible based on the available evidence and should never have gotten to the point of a funded research study. It either represents blatant ignorance of research methodology or a biased, unethical and unscientific attempt to create an impression that neck manipulations are dangerous. There is not a shred of evidence being collected in this study that can link a chiropractic adjustment to the cause of the dissected artery. Correlation does not equal cause and effect. If there were no other recorded causes of artery dissection, traumatic or non-traumatic, and if there were not millions of adjustments performed without stroke, then the temporal relationship (correlational relationship) that they are using to justify this study might have more weight and be more logical. The truth is that there is no way to say, based on this study, that someone who has had a stroke and been to a chiropractor has had a stroke due to the chiropractic adjustment – period. The only way to determine if chiropractic adjustments are capable of causing stroke is to study the arterial dynamics during an adjustment. Though not totally comprehensive, the only studies that have looked at this showed no evidence that the adjustment is dangerous. If a properly designed and controlled study of arterial dynamics during an adjustment indicates that in some cases an adjustment is a risk then of course all responsible chiropractors and allopathic manipulators would take every precaution necessary to avoid such danger. This information is not available. Telling people not to go to a chiropractor because of risk of stroke is as sensible and responsible as telling them not to towel dry their hair, get their hair washed at a salon, turn their head to see behind them, or play any contact sport. Furthermore, research indicates that underlying pathology is most certainly involved in reported cases of vertebrobasilar artery dissection but that testing for this pathology would kill more people than it would save, even if adjustments were as dangerous as they claim. Some chiropractors still make the mistake of using provocative screening tests which have been shown to be useless. In fact, a positive provocative test is much more likely to indicate the need for an adjustment due to dysafferentation caused by subluxation than a contraindication to an adjustment due to vertebral artery blood flow problems. This shows how much our own profession has been influenced and scared by the pseudoscientific claims stemming from flawed research.

Let's examine the facts based on the available scientific evidence. The reality of the matter is that 50,000 people a

year in Canada suffer from stroke. The more people we see in our offices the greater the chance of a stroke occurring in relation to an adjustment. This is due to correlation not cause and effect. According to the criteria of this study, if all citizens of Canada went to the chiropractor once a week, chiropractic adjustments would be responsible for 100% of the strokes in Canada. We must not be trapped into arguing about percentages and defending ourselves based on the fact that adjustments represent a very low risk. This is the red herring. According to scientific evidence we can't calculate a risk and do not know if there is any risk. All the available stats on risk are based on retrospective case studies that cannot validly be used to determine cause and effect. We must understand and point out to others that as long as there are multiple causes for stroke that are linked to everyday living there will never be a way to scientifically determine the cause of a stroke retrospectively. In other words in every case of stroke the individual has been exposed to multiple risk factors that could all have caused the stroke. How then can we predict which one it was? We can't and real researchers know this. This stroke consortium is just one more in a string of many witch hunts and a deliberate attempt to persuade the public that we are dangerous. It saddens and frightens me that we have people within our profession who do not understand this. We must not respond to their accusations by arguing that we represent a low risk. We must argue based on the available scientific evidence and the biased and unscientific design of their retrospective study. Perhaps we are not all familiar with research methodology. If this is the case then we must consult someone who is. I am pleased that many have responded so quickly but I feel the response was directed at the red herring rather than the flaws in their claims based on the poor research design and bias. This is not a poor study because it is being performed by M.D.s or because it's conclusions are negative for chiropractic. It is a poor study because it's design is totally biased and so flawed that it will never provide anything more than a harmful suggestion that some of the strokes may have been caused by manipulation. The fact that a study with such a poor design even got funding is a wake up call to all of us who trust in the peer review process to ensure that studies with extreme bias and poor research design are rejected.

There are many other problems associated with this study. There is the erroneous assumption that a manipulation is the same as an adjustment. No operational definition of these terms available in the literature supports this stance. They are not interviewing the chiropractors to determine if a cervical adjustment or manipulation actually occurred. The patients who report to a chiropractor represent a potentially skewed population as they may be going to a chiropractor because of neck pain caused by a vertebral artery dissection. The chiropractor/allopractor may in fact be adjusting/manipulating a vertebral artery dissection victim rather than causing one. Also, and perhaps most confusingly, the study reports that 582 cases of vertebrobasilar dissection or occlusion were investigated over the period of six years. Since research reports that vertebrobasilar artery dissections comprise only 1.3 in 1000 cases of stroke this would mean that

the researchers would have seen a total of 582,000 stroke victims, or every case of stroke in Canada during the period of the study. This is not even claimed to be the case by the researchers. The numbers just don't seem to match up here.

Perhaps the biggest danger associated with this study and others like it is that it is used by many allopaths within our profession to argue that manipulation should only be used when symptoms are present because an asymptomatic patient should not be exposed to the risk of stroke (i.e the risk of stroke is too high to justify the benefits of a manipulation that may occur in someone without neck pain). This stance is certainly used by many clinicians at CMCC and I suspect at other institutions. Not only does this represent ignorance of the available data on stroke but a criminally deficient lack of knowledge of chiropractic science and philosophy. First, a manipulation would never be given to an asymptomatic patient because the goal of manipulation is to reduce symptoms; it is an allopathic procedure. Second, there is no valid scientific evidence available to calculate the risk of an adjustment so a risk:benefit discussion is moot. Third, the benefits of a cervical adjustment are enormous if the patient is subluxated whether they are in pain or not. Fourth, even the pain-based journals report low back pain improvement with cervical manipulations so suggesting the requirement of neck pain to justify a neck manipulation indicates ignorance of even the allopathic literature. No matter how you look at it there is no justifiable reason to even consider the risk of stroke in relation to the benefits of a chiropractic adjustment or an allopathic manipulation. Of course there are many other dangers of allopathic manipulations that patients should be aware of but that is a topic for another paper. If and when any valid scientific evidence is available that substantiates a risk of a chiropractic adjustment then I expect all of us to act accordingly keeping our patient's best interest in mind. At this point in time this evidence is not available and denying a subluxated patient an adjustment or frightening a subluxated patient away from getting an adjustment due to an unscientific claim of a risk of stroke is unethical and in violation of the Hippocratic oath. Sadly, it appears that many in medicine and many allopaths within chiropractic got confused and took a Hypocritic oath by mistake.

Yours in the Science, Art, and Philosophy of Chiropractic,

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Chiropractic: The Safest Healing Art and the Stroke Farce

To the Editor,

More and more the media is playing up the risk of adverse outcomes following or directly related to health care and health procedures. Nowhere is this more true than the recent exposé of the College of Physicians and surgeons of Ontario, a governing body for Medical Doctors mandated to regulate the practice of medicine in the public's best interest. On the contrary, it has been overwhelmingly shown that this organization represents an 'Old Boy's Club' working in the best interest of the M.D. with the vast majority of complaints brushed off or dismissed with no action or even follow-up.

However most people in the public see this as one or two bad apples in an otherwise very healthy and wholesome batch. It doesn't discourage MD utilization in the slightest. Flip the coin and look at the exposé the Toronto Sun and Canoe.CA have had on the Chiropractic profession with respect to the issue of stroke and the death of Lana Dale Lewis over 4 years ago. The Toronto Sun, albeit not nearly as reputable a news-source as the Toronto Star, still impacts the thinking of millions of readers every day despite many sensationalistic type reporting - sometimes bordering towards the realm of the National Inquirer.

The Inquest into the death of Lana Dale Lewis represents a strongly political, hate and fear induced public exposé of the chiropractic profession, which despite past and current attacks, has maintained a strong foothold over the years as among the safest of healing arts. The Sun makes the chiropractic profession out to be the 'bad guy' shrugging off this case for nearly five years (untrue), using unsafe, untested and unlicensed methods and technology (untrue) and being generally dangerous and uncaring (emphatically untrue).

Where does the truth lie? Certainly not under the headlines or reporting of the Toronto Sun. Lets look at it closer. Why would a family not raise the accusation of a stroke being related to the chiropractor's adjustment until nearly 3 years later. After all, the adjustment happened some six days prior to Mrs. Lewis unfortunate accident. Why would the coroner be threatened by an M.D. from another province (with no relation to the Lewis family or the case) saying he would 'end his career in disgrace' if he didn't call for an inquest? Why did their legal counsel 'jump ship' quit his post just a few days before the inquest was scheduled to begin, again further delaying this media saga? Why would Murray Katz, an MD with a 25 year history as an anti-chiropractic zealot spreading lies, hate and fear at every opportunity nationally and internationally) be chosen as legal counsel to represent the Lewis family, only once again to have the Chiropractic profession look like the 'bad guys' when they successfully moved to have him thrown off?

Why would the Sun target only negative and anti-chiropractic sources of information and propaganda? How is it that all the media blitzes correlate in timing to the Inquest proceedings and the now 'dead' issue of CMCC's affiliation with York University (a highly political and widely protested move which was recently discarded as a possibility). Maybe

it's all a coincidence... maybe it isn't. Am I the only one who smells a rat?

What do the numbers say? Can a specific chiropractic adjustment intended to restore and enhance life cause a stroke? Is the fastest growing and largest natural health profession creating such problems and putting people unnecessarily at risk? Read on.

Stroke is one of the number one killers today. In Canada, it is the 4th leading cause of death claiming the lives of 50,000 people every single year. According to Stats Canada, the population of Canada is currently approximately 31 million people. That translates to a 1 in 615 chance for any Canadian regardless of age to have a stroke in any given year... a 1 in 32,000 risk of someone suffering a stroke in any given week and a 1 in 224,000 risk in any given day.

What's the risk for the chiropractic patient? Most authors suggest that the incidence of stroke following a chiropractic adjustment is too low even to estimate. However, most estimates tend to be One in a million or less. Some authors have even predicted as few as one in 10 million. In either estimation you're more likely to be struck by lightning on a sunny afternoon that have such an occurrence (personal opinion).

Let's just look at the numbers in the recent purported study where the Canadian Stroke Consortium (a biased team of Medical specialists) gave their opinion regarding the incidence of chiropractic adjustment and stroke. The so-called study looked at 582 stroke cases admitted to Ontario hospitals over several months. Of these, the authors reported 9 had visited a chiropractor within 1 week before the stroke. That translates to one in 60 had been to a chiropractor (not necessarily having been adjusted in their cervical spine, just had visited a DC) within 7 days prior. To me, or anyone of sound mind, that translates to stroke victims were 60 times less likely to have been to a chiropractor within the last week.

Let's look at the numbers a little differently. If the utilization numbers for chiropractors are true, it is safe to say that about 10% of the general population is currently under some form of chiropractic care, although a much higher percentage had been at some time in the past. If 10 percent are currently under chiropractic care then what is the likelihood that any one of them saw their chiropractor (or more specifically received a cervical adjustment) within any given 7-day period? Seeing a principled chiropractor, that likelihood would probably be 80% or higher. But some D.C.s even have their patients on 'maintenance' care at frequency schedules of several weeks. But considering the number of patients on more active corrective frequency schedules, the average visit frequency would conservatively be about 50% of the patients under active care in any given week. This would mean 5% of the entire population of Canada would have seen a DC in any given week regardless of condition or type of care or chiropractor.

So, if we then look at stroke victims or car accident victims or hang-nail sufferers for that matter and ask them when was the last time they had seen a chiropractor, it would be safe to say that about 5% of them would answer "yes" within the last

7 days. Looking at the Stroke study then, it would be safe to assume then that if we take 5% of the 582 stroke victims the consortium used as case examples, you would expect that at least 29 would have been to a chiropractor within the last week. However, only 9 of 582 had seen a chiropractor. This would lend credence to what other statistical compilations have shown - that patients under chiropractic care are actually protected (statistically) from stroke or more than 3 times less likely to suffer from a stroke than the average person.

The authors seemed to have come up with a conclusion that suited their desired outcome despite overwhelming evidence of the contrary. Every single year, millions of Canadians put their health in the healing and caring hands of Chiropractors across the country, without complication other than improved health and well-being (as if that were one). If they can only find one or two cases in 5 years and millions of specific chiropractic spinal adjustments delivered to the cervical spine,

then maybe even we are drastically missing the boat by considering the possibility exists. Most statistical comparative analyses including this one show that a stroke is significantly more likely to occur just by random chance in the population, (regardless of age, sex or risk status) than it is for the chiropractic patient.

The Canadian Stroke Consortium, Dr. Norris, Dr. Murray Katz, The Toronto Sun, Canoe.CA and the like are doing a fantastic job at 'trying' to spread falsehoods, lies, deceit and fear in the eyes of the public. However, I would dare not call it a conspiracy for fear of potentially harming someone's reputation.

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