

## Waiting for Science -The VBA Argument

Anthony Rosner, PhD, LLD [Hon.], LLC

A long series of recent publications has attempted to single out chiropractic as a significant causative factor of cervical artery dissections and strokes. These have appeared in medical journals,<sup>1-7</sup> and in the widely circulated lay press.<sup>8</sup> I and other members of the chiropractic research community have found ourselves increasingly preoccupied with having to craft responses to these reports.<sup>9,10</sup>

A more recent study from the University of Toronto and the Sunnybrook and Women's College Health Sciences Centre published in *Stroke* has turned the heat up a notch or two. It presents 582 cases with a diagnosis of vertebrobasilar dissection or occlusion from January 1993 through December 1998, age and sex matching these to four controls each lacking this diagnosis from the Ontario population. The study documents the use of chiropractic services from public health insurance billing records. Of those patients under 45, vertebrobasilar accident (VBA) cases appeared to be five times more likely than controls to have visited a chiropractor within one week of the VBA, although no significant associations were found for those over 45. In the younger cohort, VBA cases were five times as likely to have had three or more visits with a cervical diagnosis in the month before the occurrence of the VBA.<sup>11</sup>

Unfortunately, this argument appears to be somewhat of a red herring. It also suffers from a paucity of numbers, for when the focus is reduced to the most heralded cohort of the study (patients under 45), only six had cervical manipulations within one week of their VBA, against a background figure of one from a matched cohort that did not have a vascular event. That would leave five incidences that would appear to be attributable to the chiropractic visit over a five-year period, or one per year.

The fact remains that Rothwell's own data clearly indicate the vast preponderance (over 95 percent) of VBA stroke victims did not visit the chiropractor's office within the year preceding the vascular event, and nearly another three percent saw a chiropractor from one to 12 months preceding the stroke.<sup>9</sup> What needs to be emphasized is that no less than 68 everyday activities have been shown to disrupt cerebral circulation.<sup>12-14</sup> Eighteen of these activities have been associated with vascular accidents, but are decidedly nonmanipulative:<sup>14</sup> childbirth; interventions by the surgeon or anesthetist during surgery; calisthenics; yoga; overhead work; neck extension during radiography; neck extension for a bleeding nose; turning the head while driving a vehicle; archery; wrestling; emergency resuscitation; stargazing; sleeping position; swimming; certain forms of dance; fitness exercise; beauty parlors (hair washing); and *tai chi*.

Assuming that VBAs are the result of blunt trauma may exonerate most cervical adjustments as the causative agent. Peak elongations of the vertebral artery during manipulative treatments of the neck have recently been shown to be at most about 11 percent of the elongations observed at the arterial failure limit; in fact, these elongations are consistently *lower* than those seen during routine range of

motion and diagnostic testing.<sup>15</sup> What is becoming more apparent is that VBAs must be considered the result of *cumulative events* over an extended period of time, rather than recent visits to the chiropractor.

Simply expressed, this argument states that a subset of stroke patients who had sought chiropractic treatment for neck pain were already well on the way to experiencing a VBA accident. Rothwell's study omitted the most obvious and convincing control group - which would have been to include a cohort of patients with neck pain seeking treatment by practitioners *other* than chiropractors, such as allopathic physicians. Like a perfect sham procedure in a clinical trial, this particular control would have accounted for all variables, *except* the fact that the patient visited a chiropractor rather than another practitioner. Clearly, this design would have more directly tracked the development of VBAs and avoided the highly conjectural and suspiciously political attempt to lay the blame directly on chiropractic manipulation, as has been done in the studies of inferior design cited earlier.<sup>1-7</sup>

Instead of becoming too obsessed with Rothwell's single-digit numbers of cases, and to put this matter in the proper perspective, one should be forever cognizant that death rates following cervical manipulation calculate between 1/100-1/400 of the rates seen in the use of NSAIDs for similar conditions.<sup>16,17</sup> Death rates from lumbar spine operations have been reported to be 300 times higher than the rate produced by cerebrovascular accidents in spinal manipulation.<sup>18,19</sup> For cervical surgeries, recent death rates have been estimated to be 700 times greater.<sup>19</sup> As Dr. P.L. Rome has pointed out,<sup>12</sup> risks for "virtually all" medical procedures ranging from the taking of blood samples;<sup>20</sup> use of vitamins;<sup>21</sup> drugs;<sup>21</sup> "natural" medications;<sup>22</sup> and vaccinations<sup>23</sup> are routinely accepted by the public as a matter of course.

Until these lifestyle risks are bundled into a study of the proper design, the public will continue to misunderstand the true etiology of vertebrobasilar artery accidents, being led instead to chase arguably less than three percent of the total number of reported VBAs down a rabbit hole which has been labeled "the chiropractor's office." One also hopes that having to respond to this increasing number of studies based on a paucity of cases does not become the centerpiece of the chiropractic agenda.

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Anthony Rosner, PhD  
Brookline, Massachusetts  
[rosnerfcer@aol.com](mailto:rosnerfcer@aol.com)

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