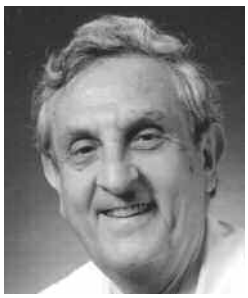
Editorial

Stopping Late Whiplash: Which Way to Utopia?



There is a story about a science professor giving a public lecture on the solar system. An elderly lady interrupts to claim that, contrary to his assertions about gravity, the world travels through the universe on the back of a giant turtle. "But what supports the turtle?" retorts the professor. "You can't trick me, says the woman, "it's turtles all the way down." (The Economist, July 19-25, 2008, p. 79)

The incidence of whiplash associated disorder (WAD) varies widely, ranging from 10/100,000 in New Zealand to 328/100,000 in the United States[1,2]. Large regional differences may occur within the same country, such as in Canada, between Quebec (70/100,000) and Saskatchewan (600/100,000)[1]. The incidence of WAD has apparently increased over the past 30 years[1].

Patients who are still symptomatic and/or have residual disability after 6 months are deemed to have chronic WAD, also known as late whiplash[3]; their percentage ranges between 13% and 67%[2,4,5]. There are several explanations for this wide variation: there is no universal agreement on what constitutes partial or complete recovery, some patients develop chronic neck pain for other reasons, and followup may be incomplete[4].

WAD is the result of injuries to one or several of zygoapophyseal joints, discs, vertebral bodies, or spinal ligaments[2,4]. Central sensitization is probably important in chronic WAD[2,5,6]. Severe initial neck pain, high WAD grade, poor coping strategies, female gender, and older age contribute to chronicity[5,7]. Psychological factors may play a part[4,7], but a recent review found limited evidence only for problems with self-efficacy and posttraumatic stress[8]. Switching from a tort system to no-fault insurance results in significantly earlier case closure, although this does not necessarily mean recovery[5].

Ferrari and Russell offer a simpler explanation[9]. They accept acute WAD, but propose that late whiplash with chronic pain and disability is a result of unrealistic cultural expectations. It is a tribute to the energy of Drs. Ferrari and Russell, and to their many publications and letters to the editor on this subject, that these views have gained wide acceptance. They claim that chronic WAD is rare or nonexistent in Germany, Greece, and Lithuania, in contrast to its frequent occurrence in other European countries and North America, where the population is conditioned to expect worse outcomes. Even in North America, however, certain occupational groups, such as physicians, aware that WAD is benign, show resistance to progression from the acute to the chronic stage[10].

It seems appropriate, therefore, to take a closer look at the evidence. Limitations of space do not allow a complete and detailed examination; a few examples may suffice.

Let us start with Germany; the evidence for a low incidence of chronic WAD is based on selected observational studies. Ferrari and Russell disregard studies that show a high incidence of late whiplash. For instance, Meenen, *et al*, in Hamburg-Eppendof, examined 60 patients with acute, uncomplicated WAD 5 years after their initial injury[11] — 39 of the 60 still had neck pain; 19 were taking analgesics and 11 of those were taking them regularly; 25 patients reported impaired function[11].

Richter, *et al*, in Hannover, reviewed responses to questionnaires sent to 138 patients with WAD, whose injury had occurred at least 1 year previously[12]; 51 (37%) had persistent complaints; altogether 121 had complaints most of which were due to pain in the neck, head, or shoulders; 65% of the group made insurance claims, and insurance payments had been awarded in 26% of cases.

The outcome of WAD in Germany is supposedly related to rarely expecting complications from this injury, in contrast with the pessimistic views of Canadians, according to a study by Ferrari and Lang in Edmonton, Canada, and Erlangen, Germany[13]. The subjects, employees of utilities companies, completed a 56-symptom checklist, after reading a hypothetical history of involvement in a motor vehicle collision. The list dealt mainly with cognitive problems such as getting lost while driving, forgetting where the grocery store is, forgetting appointments, etc. Only one question dealt with pain in the neck or shoulders. There were 151

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respondents in Erlangen and 179 in Edmonton; 42% of Canadian and 38% of German respondents had a university education. It seems farfetched to judge national attitudes based on a survey, with responders from only one city in each country, an atypically high percentage of university graduates, and responses to a questionnaire more appropriate for assessing the consequences of a concussion rather than those of WAD.

The presumed absence of late whiplash in Greece is based on data from an inception cohort of 180 cases of WAD seen at the University of Patras Hospital[14]. Neck pain was present in only 17 at 1 month, and in only 2 at 6 months. The authors state that, "in Greece the acute whiplash process presumably underlying Grade I or Grade II whiplash associated disorder is benign," even though medical litigation in other conditions has become common[14].

Alas, it appears that not all Greeks have as good an outcome as those in Patras. A report from another part of the country on 134 patients with WAD who pursued litigation found that 65% had symptoms for more than 6 months[15].

Lithuania has been cited as a country where chronic WAD is unknown. Schrader and colleagues studied chronic WAD in the city of Kaunas[16]. They obtained police records on car accidents, and the names and addresses of drivers of cars "with significant rear-end impact." A questionnaire was then sent to the drivers asking about a number of symptoms, including those of neck pain. Controls from the population register of Kaunas region were also selected. Comparisons were then drawn between the frequency, severity, and duration of neck pain of the accident victims and the controls. Chronic neck pain was similar in both groups.

Many viewed the study as proving the absence of chronic WAD in Lithuania. However, it was criticized for several reasons, including that it was a retrospective study done at an average of 21.7 months after the crash (problem of recall bias), and that only 15% of the exposed cohort had been injured initially, a sample size far too small to "have sufficient statistical power to discern a significant difference between the two groups" (i.e., accident victims and population controls)[17].

Obelieniene, Schrader, and their colleagues published a second Lithuanian study, again obtaining records from the police[18]. A questionnaire was sent to 277 accident victims 2 to 7 days after the accident, and subsequent questionnaires were sent out 2 months and 1 year after the accident. A control group was obtained from the general population. Ten percent of the responders had neck pain alone after the accident, 18% had neck pain with headache, and 19% had headache alone. The median duration of post-accident neck pain was 3 days (range less than 3 hours to 17 days). After 1 year, frequent neck pain was reported by 4% of accident victims and 6.2% of population controls.

This study had several shortcomings: only 76% responded to the first and 72% to the second and third questionnaires; headache alone is not WAD[3]; only rear-end accidents were included, although WAD occurs in other collisions[1,4]; the prevalence of neck pain pre-accident (30%) was higher than post-accident (28%), at study inception. No subject reported severe or excruciating initial neck pain. One has to wonder if any respondents in the study had suffered WAD. At most, 37 without previous neck pain experienced new neck pain, again casting doubt on this study's statistical power.

Ferrari and Russell's claim that physicians do not develop chronic WAD is based on a study where questionnaires were handed to physicians at the University of Alberta Hospital, Edmonton, as well as to a miscellaneous group of "non-physicians" including allied health professionals, unit clerks, other hospital staff, and visitors to the hospital cafeteria[10]. The questionnaire asked whether the respondents had been involved in a motor vehicle accident, whether they suffered from "neck or back sprain, neck or back injury, or whiplash as a result of the accident," and for how long after the accident they had experienced symptoms associated with the injury, "be they neck pain, headache, back pain or others." In other words, the questionnaire was not specific for WAD. Recall bias was not considered. The percentage of responders among the various categories was not mentioned. There were 149 physician responders and 207 non-physician responders; 31% of physicians and 46% of non-physicians had suffered WAD, an unusually high prevalence[4]. No data were reported on sex ratios. Given the lack of basic information in this study, and the poorly conceived questionnaire, it is difficult to come to any conclusions.

To Ferrari and Russell, chronic WAD is "an example of illness induced by society, in general, and by physicians in particular"[9]. In their article on physician resistance to WAD[10], they claim that since physicians are aware of the controversies over WAD, and educate patients about the "structurally benign nature of whiplash related problems," they would be less likely to be fearful of the whiplash injury as severe[10]. What has led Ferrari and Russell to change their concept of physicians as knowledgeable and benevolent educators, to that of promoters of false expectations?

Finally, Ferrari and Russell contrast findings in 2 of their studies[19,20], and infer that the higher recovery rate in the second one was the result of Alberta legislation limiting payments for pain and suffering. They acknowledge some of the problems involved in their comparisons, but fail to mention the additional one that the response assessments used were different[19,20]. These are thin reeds to lean on.

The literature cited above, such as the works of Meenen, *et al*[11] and Richter, *et al*[12] and the report of chronic WAD among Greek litigants[15], has flaws, including a low percentage of responders, potentially biased responders, and lack of generalizability. However, reports purporting to show that WAD is a culturally induced illness are equally flawed.

The hypothesis that societal attitudes lead to chronic WAD is intriguing, but the Task Force on Neck Pain and Associated Disorders[5] concluded that there is "no scientifically admissible study or studies which directly assessed the impact of cultural factors on recovery of WAD". That is plain enough, notwithstanding Ferrari and Russell's interpretation[9]. Much better evidence is needed before heeding their pleas for complex social interventions. What they have offered us, so far, is "turtles all the way down."

MANFRED HARTH, MD, FRCPC,
Emeritus Professor of Medicine,
Division of Rheumatology,
University of Western Ontario,
London, Ontario, Canada

Address reprint requests to Dr. M. Harth, AIM Health Group, 140 Oxford Street East, Suite 300, London, Ontario N6A 5R9.
E-mail: mharthc593@rogers.com

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