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Quebec Task Force on Whiplash-Associated Disorders

What Does it Mean for Practitioners?

By Arthur Croft, DC, MS, MPH, FACO

In 1989 the Quebec Automobile Insurance Society (Societe d'assurance automobile du Quebec, or SAAQ) approached Dr. W. O. Spitzer, of the Department of Epidemiology and Biostatistics, McGill University, with the idea of an in-depth look at the medical, social, and economic ramifications of whiplash injuries. Readers may be familiar with Dr. Spitzer from his work on the "Scientific Approach to the Assessment and Management of Activity-Related Spinal Disorders."

An abridged version of the resulting whiplash document was recently released as an entire supplement of the journal *Spine*.¹ As noted in an editorial by Dr. Nikolai Bogduk, the document stands, as he puts it, as an indictment of the literature on whiplash -- the primary data source for the project. In fact, of the 10,382 titles and abstracts found that pertained to the topic of whiplash, only 294 (less than three percent) were considered for review. The remainder were rejected by the blue ribbon panel for being either irrelevant or for lacking scientific merit. That panel included one from our ranks -- the highly respected Canadian researcher J. David Cassidy, DC, PhD.

This editorial will very briefly highlight some of the more significant findings and recommendations of the Quebec Task Force (QTF). However, I would encourage all who treat whiplash patients to read the entire document. Experience has demonstrated the high potential for abuse of similar documents that are not read or thoroughly understood by most field practitioners.

Section 1. Approach to the Problem

As justification for the QTF efforts, the authors noted that whiplash costs are high and rising and that the residual disability of victims appears significant in magnitude. They considered only original research in their "best evidence synthesis" of literature, and, due to the general poverty of such work, their task was

difficult indeed. In many instances there simply was no research to evaluate, and instead, the consensus of a panel of experts was then relied on.

One of their most important contributions, they noted, was the development of a classification system. The authors also coined a new acronym, WAD (whiplash-associated disorders).

My Commentary (regarding Section 1)

Having served on a similar project at RAND, I can appreciate the frustration encountered in areas where only limited research is available. However, I would wager that I have most likely read most of the 10,088 literature citations that were excluded in this work. And, although most take the form of reviews, case reports, or small series, or can be rightfully criticized on the grounds of faulty study design or statistical error, one cannot help but be concerned about the potential for tunnel vision when 97 percent of the literature is discarded. Much of our body of remaining medical literature can be equally criticized.^{2,3} Yet much can be gleaned from it in spite of sampling errors, selection bias, and the like.

Dr. Steve Foreman and myself can be credited for coining the acronym CAD (cervical acceleration/deceleration). Although it helped to distinguish rear impact collisions from other forms, it did little for the taxonomy of the clinical condition. WAD covers such a broad spectrum of disorders, by QTF's definition, that its utility in this regard is equally limited.

Section 2. The Quebec Whiplash-Associated Disorders Cohort Study

A cohort of 3014 whiplash victims who made compensation claims against SAAQ, the sponsor of the research, was followed for six years. Outcome variables of interest included compensated time off work, recurrences or relapses of symptoms, and the financial cost to SAAQ. A surprising finding was that 74.6 percent of all compensation costs were for lost income, while only 12.5 percent went to medical costs (and hospital costs that were not covered by health insurance). Another 5.6 percent of the costs covered replacement of damaged clothing and travel expenses. A significant number of patients (75 percent) had more than seven days off work.

My Commentary (regarding Section 2)

When I first got wind of this study a few years ago, I assumed (incorrectly) that, since the insurance industry's files would be available for review, this QTF research would be the first to address an issue

which I have been wondering about for years -- namely, what is the risk of injury to those exposed to whiplash-type accidents. They did report the incidence per 100,000 persons in Quebec, noting the great disparity in the literature internationally and even between provinces in Canada (in Saskatchewan, for example, the incidence is 10 times higher), but the actual risk was not calculated. The disparity in incidence rates only underscores the concern that Canadian and US populations may not be entirely comparable for several reasons.

Section 3. Consensus Findings

Under this section of the monograph the QTF outlines its "Proposed Clinical Classification of Whiplash Associated Disorders" -- one of their most important accomplishments, they point out. They describe five grades of severity as follows:

Grade Clinical Presentation

0 No neck complaints; no physical sign(s)

I Neck pain, stiffness, or tenderness only; no physical sign(s)

II Neck complaint AND musculoskeletal sign(s)*

III Neck complaint AND neurological sign(s)

IV Neck complaint AND fracture or dislocation

- Musculoskeletal signs include decreased range of motion and point tenderness. Neurologic signs include decreased or absent deep tendon reflexes, weakness, and sensory deficits. Adapted from reference 1 (page 23s).

The other axis of their proposed classification scheme was a time axis. Patients within each severity grade are further classified on a time scale as: 1) less than 4 days postinjury; 2) 4-21 days postinjury; 3) 22-45 days postinjury; 4) 46-180 days postinjury; and 5) more than six months postinjury.

My Commentary (regarding Section 3)

Although the basis for the breakdown of the five different time scales is not given in the monograph, I certainly would agree with the two axis classification system. I have long advocated that the most effective treatment regime will require both a grading of the patient's severity and a staging of their recovery. In fact, I have previously published a "Proposed Classification of Cervical Acceleration/Deceleration (CAD) Injuries" on several occasions.⁴⁻⁸ This is, of course, literature that failed to pass muster with the QTF's

strict inclusion criteria and is perhaps ironically illustrative of the dangers inherent in overly critical literature review/selection processes. Of my two textbooks, four comprehensive course manuals, and numerous journal publications, none were mentioned in the references or the supplemental bibliography (which did not have to satisfy inclusion criteria and could be relied upon by the researchers for background information). I should mention, in fairness to the QTF, that their cut-off date for literature was 9-93.

My proposed classification system, with three axes (which was first published in late 1991) is as follows:

Type of Collision

I Primary rear impact

II Primary side impact

III Primary frontal impact

Grade of Severity

I Minimal: no limitation of motion; no ligamentous injury or neurological findings

II Slight: limitation of motion; no ligamentous injury or neurological findings

III Moderate: limitation of motion; some ligamentous injury; neurological findings may be present

IV Moderate to severe: limitation of motion; ligamentous instability; neurological findings present; fracture or disc derangement*

V Severe: requires surgical management/stabilization

Stages of Recovery**

I Acute: inflammatory phase; up to 72 hours

II Subacute: repair phase; 72 hours to 14 weeks

III Remodeling phase: 14 weeks to 12 months or more

IV Chronic: permanent

- Fracture can include minimal end plate fracture; disc derangement can include non-herniated forms.

- Duration of stages depends on severity of injury and other factors. (From references 4-8).

My recommendations concerning stages were based on several animal research studies.

Section 4. Best Evidence Synthesis

In this section the QTF selected literature fitting its inclusion criteria concerning risk (60 papers), diagnosis (103 papers), treatment (65 papers), and prognosis (66 papers). Under the heading of "interventions," notable inclusions were mobilization, for which five randomized controlled trials (RCTs) have been reported, and manipulation, for which no accepted studies exist regarding either short or long-term benefits.

My Commentary (regarding Section 4)

A summary of the evidence for various modes of treatment, along with the QTF's recommendations for clinical practice and further research, is provided in Appendix III of reference 1. Here we find that no research was found concerning the use of cervical pillows. Thus the opinions expressed are consensus-based: "Cervical pillows are not required." Despite the widespread use of cervical pillows by chiropractors, unquestionably one of the largest groups of primary treating doctors for WAD, the panel further concluded that no research was necessary. This hardly seems like a logical conclusion. Following that guideline, we'd probably have to discard at least 50 percent of all medical interventions (including some forms of spinal surgery) without even giving them a chance. Spray and stretch technique fared only slightly better: it was not recommended, but the QTF did recommend RCTs. Of the physiotherapeutic modalities, it would appear that they are recommended only for the initial three weeks in Grades II and III. Notwithstanding the lack of hard scientific evidence, my own experience suggests that this recommendation will be overly restrictive in many cases.

Space does not allow a thorough discussion of all topics. For practitioners interested in videofluoroscopy, the only carefully executed, blinded concordance study suggesting its reliability and utility in CAD or WAD patients, that would have satisfied QTF's inclusion criteria, was published four months after their review cut-off date of 9-93.9 The QTF made no mention of VF.

Section 5. Conclusions

The authors emphasize that patients should be reassured that WAD injuries are almost always self-limited. They also make several general recommendations about safety device use (seatbelts, etc.). On the issue of

diagnostics, radiographs are recommended for Grades II and III (Grade IV was omitted here).

Flexion/extension films or tomograms are indicated when the three-view series is equivocal. Short-term manipulation is indicated in Grades II and III. Presumably, it is not deemed necessary in Grade I.

With an emphasis at avoiding chronicity, the QTF developed a simple algorithm for management:

Unresolved disability (a term indicating that the patient has not returned to "usual activities") in Grade I WAD requires specialized consultation at three weeks and a mandatory, multidisciplinary consultation after six weeks. For Grades II and III, specialized consultations and multidisciplinary consultations are suggested at 6 and 12 weeks respectively in cases of unresolved disability.

Finally, the authors give a recommendation for education, noting that most health care practitioners are ill-equipped to treat WAD patients effectively. The primary interventionist, they note, "... must possess the qualities of a clinical anatomist ... have an in-depth knowledge of neuroanatomy ... and peripheral anatomy ... a basic knowledge of the autonomic nervous system ... [and] be an excellent diagnostician." He or she must also be familiar with rehabilitation of the musculoskeletal system and acquire a basic knowledge of clinical epidemiology. Some specialists in various disciplines (including chiropractic), they note, have acquired such skills, "through individual voluntary postgraduate training." And finally, "There should be a considerable effort made to educate clinicians already involved in the management of WAD through postgraduate education programs."

My Commentary (regarding Section 5)

The authors of this monograph are clearly motivated to forestall chronic disabilities. However, the best evidence is that a significant number of these patients continue to be symptomatic.⁷ Arguably, to emphasize a benign and favorable outcome to all patients might engender self-reliance and a positive attitude -- perhaps even provide a placebo effect of sorts. On the other hand, it is not an accurate statement and my own clinical experience is that overly sanguine forecasts foster unrealistic expectations for outcome while underpinning patient compliance.

Readers should understand that the relatively short-term manipulation recommendations are based merely on a lack of literature supporting this type of intervention. We should be thankful that we were included at all based on that. Future RCTs should address this issue directly and will probably allow a modification of the guideline accordingly. It appears, however, that the term "unresolved disability" is a critical one for the interpretation of these guidelines. The authors define a patient that is able to resume work and other

activities, even though still in pain and with limitations of range of motion, as "resolved." Presumably, if a clinician can demonstrate a need for ongoing care, these "resolved" patients can still be treated under the guidelines beyond the three week, six week, and 12 week referral points described above without specialist or multidisciplinary consultation. Our own research has shown that only a minority of patients continue to be totally disabled at six weeks postinjury. And I would agree that long-term total disability does require more aggressive intervention.

It is not entirely clear to me why Grade I patients, who by definition have stiffness and neck pain, should not be afforded manipulative and other adjunctive forms of care.

Summary

This study was an important one for several reasons. For those who have maligned the condition of whiplash as a self-limiting and invariably benign condition, and those claiming it as charlatans, this report should be instructive. Thanks in no small part to the input of Dr. J. David Cassidy, chiropractic has been included in the QTF's list of acceptable interventions. The report clearly highlights the need for further study into effective forms of management and will probably act as an impetus for funding of such projects.

Insurers, defense lawyers, and medicolegal experts in the USA will, no doubt, be quick to adopt the QTF's guidelines since they may be interpreted to constrain care rather severely in some areas. Guidelines earlier developed by me (reference 8, p465) are significantly more liberal and provide more flexibility by allowing practitioners a wider range of treatment frequency and duration based on the unique needs of individual patients (e.g., older patients or those with pre-existing disease may require more care than younger patients). They were, however, similarly developed with limited hard research and will almost certainly require refinement as research continues. Perhaps my greatest concern is that these QTF guidelines for treatment were based on a relatively shallow pool of existing research -- literally a handful of outcome studies on mobilization and none on manipulation's long-term benefit. These have looked at few of the potentially complicating features of this very complex phenomenon. The potential for abuse with these guidelines will no doubt parallel, and probably surpass, that seen in connection with the Mercy document where mischaracterization and misquoting has been commonplace, particularly in the medicolegal setting.

Finally, clinicians, lawyers, and insurers should not lose sight of the fact that, despite the prestige of the university affiliation, the large number of PhD and MPH biostatisticians and epidemiologists involved, the apparent depth of the analysis, the magnitude of the report itself (occupying an entire supplement in the

respected journal *Spine*), and the enthusiastic, if somewhat inaccurate, hoopla provided by a willing press, these guidelines for management are based primarily on the opinions of a relatively small panel of "experts" (whose names I do not recognize from the whiplash literature) and much less so on the results of rigorous scientific outcome studies. Moreover, there has been a disturbing trend, in recent years, for insurance companies and automobile manufacturers to finance their own research despite their unmistakable entrepreneurial interest in the outcome. When the outcome does not suit them, the research is simply quashed. One recent example of insurance funded work is the McConnell et al., study (which the QTF also relied upon) of low speed rear impact collisions.¹⁰ This group out of San Antonio, has been subsequently called upon to testify in cases of low speed impact related soft tissue injury. The potential for bias in these studies is undeniable.

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