A Randomized Controlled Trial of an Educational Intervention to Prevent the Chronic Pain of Whiplash Associated Disorders Following Rear-End Motor Vehicle Collisions

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Brison, Robert J. MD; Hartling, Lisa BSc, PT; Dostaler, Suzanne MSc; Leger, Andy PhD; Rowe, Brian H. MD; Stiell, Ian MD; Pickett, William PhD

FROM ABSTRACT:

Study Design.
Concealed allocation, multicenter, single-blind, randomized controlled clinical trial.

Objective.
To assess the efficacy of an educational video in the tertiary prevention of persistent WAD symptoms following rear-end motor vehicle collisions (MVCs).

Summary of Background Data.
Whiplash-associated disorders (WAD) are an important and costly health problem. There is a lack of high quality evidence surrounding efficacy of treatments for WAD. Existing research supports active interventions and early return to regular activities.

Methods.
Consecutive patients presenting to four tertiary care emergency departments following rear-end MVCs were eligible. Following informed consent, patients were allocated, using central randomization, to receive an educational video plus usual care or usual care alone. The video provided reassurance, and advice about posture, return to regular activities, exercises, and pain-relief methods.

The primary outcome was presence of Persistent WAD Symptoms at 24 weeks postinjury, based on the frequency and severity of neck, shoulder, or upper back pain. [Nearly 6 months post injury]

The absolute difference in proportion of patients with persistent WAD symptoms and rate ratios were calculated, and changes in pain scores were compared.

Results.
The intervention [educational video plus usual care] (n = 206) and control (n = 199) groups [usual care alone] were similar at baseline (mean age 38.4 years; 64% female).

Overall, the proportion of subjects with Persistent WAD Symptoms decreased from 89.1% at baseline to 33.6% at 24 weeks after injury. [This means that 33.6% of the whiplash injured patients continue to have persistent whiplash symptoms nearly 6 months after being injured]
At 24 weeks, the proportion of subjects with persistent WAD symptoms in the intervention group was 7.9% lower than the control group. [Important]

The median improvement in pain score at 24 weeks was 3 for the intervention group and 2 for the control group. [Important]

Conclusion.
The presence of persistent WAD symptoms following simple rear-end MVCs was high in this sample. [IMPORTANT, Key Point]

The video group demonstrated a trend toward less severe WAD symptoms.

THESE AUTHORS ALSO NOTE:

Whiplash injuries can occur in any type of motor vehicle collision (MVC).

Common whiplash symptoms include, but are not limited to, neck pain, headaches, dizziness, visual disturbances, impaired concentration, and sensory changes in the upper extremities.

“One-third of persons involved in a rear-end MVC report neck pain and other WAD symptoms of important severity.”

“In the United States, the economic impact of WAD is estimated at 4.5 billion dollars per year.”

The 1995 Quebec Task Force concluded that the best available evidence suggests that whiplash symptoms might be alleviated through early return to regular activities, and a few other studies have concurred.

There is “strong evidence to support the effectiveness of early active mobilizing exercises in acute whiplash patients.”

The 20-minute video was developed based on recommendations of the Quebec Task Force. The content was scripted based on the best available evidence regarding WAD management. The video provided reassurance as well as basic advice about posture, early return to regular daily activities, range of motion exercises, and the use of pain-relief methods including ice, heat, and analgesics.

Both study groups were provided with usual initial clinical evaluation and care for the management of whiplash injuries, which may or may not have included a cervical radiograph. Patients were allowed to follow usual regimens of follow-up care (i.e., care sought by patients from other practitioners following the initial visit).

The study subjects were blinded to the study hypothesis. Subjects receiving usual care were never aware that the intervention being evaluated was an educational video.
Patient response to treatment was assessed at 2, 6, 12, 24, and 52 weeks following the initial visit, using a standardized questionnaire.

The authors also collected information on important prognostic factors, like crash characteristics and symptoms.

**SCORING**

Subjects were asked to rate the frequency [never, occasionally (less than once a week), regularly (once a week or more), or daily] and severity [no symptoms, minor (a nuisance), moderate (affects their regular activities or work), or severe (significant handicap to their regular work or activities)] of pain in the neck, shoulder, and upper back.

A pain score, on an ordinal scale (range, 0-5) was generated for each of these anatomic locations.

Persistent WAD Symptoms was operationally defined as having a score of ≥3 in at least one of these locations.

These levels of pain were at least moderate in severity and more frequent than occasional, and hence this was used as a clinically relevant cut-off value.

The primary endpoint was the presence or absence of persistent WAD symptoms at 24 weeks from the time of injury because 24 weeks has been shown to correlate with long-term symptoms.

The secondary outcome was change in the ordinal pain score between baseline and 24 weeks.

The authors assumed, based upon previous research, that there would be “a 35% prevalence of persistent WAD symptoms at 6 months following a rear-end MVC.”


**RESULTS**

Initially 94.5% of the subjects had symptoms in the neck, shoulder, upper back, low back, head, or upper extremities.

91.6% had neck pain.

The proportion of subjects reporting persistent WAD symptoms was 89.1% at baseline:

- Usual care plus video group = 185 / 206 = 90%
- Usual care group = 176 / 199 = 88%
The proportion of subjects reporting persistent WAD symptoms at 6 months was 33.6%: (55 of 184 intervention group; 62 of 164 control group) 24 weeks after collision.

Usual care plus video group $= \frac{55}{184} = 30\%$

Usual care group $= \frac{62}{164} = 38\%$

At 24 weeks, the number of subjects in the usual care plus video group experiencing persistent WAD symptoms was 8% lower than that of the usual care group.

When these authors included patients who had been lost to follow-up and classified them as treatment failures:

37.4% of the usual care plus video group had persistent WAD symptoms at 24 weeks.

48.7% of the usual care only (control group) had persistent WAD symptoms at 24 weeks.

“Overall, 32% of the study population reported using pain medication at 24 weeks after injury with no significant difference between study groups.”

“A small proportion of the study population reported receiving treatment from a chiropractor ($n = 39$, 11.2%).”

“Approximately one-third of the study sample sought the care of a physiotherapist (31%).”

6.1% of the patients reported receiving acupuncture.

**DISCUSSION**

“Although there was a consistent trend suggesting greater improvement among the group that received the educational video, the difference in the primary outcome measure at 24 weeks after injury did not achieve statistical significance.”

This study “lends further credence to the belief that this clinical syndrome [whiplash injury and chronic pain] actually exists.” [IMPORTANT]

“Research studies that have shown a positive impact of active exercise following WAD have had multiple sessions with hands-on instruction from a trained professional.”

“The pain associated with WAD may originate from different anatomic sources; the source of chronic neck pain may be the cervical zygapophysial joints in 50 to 65% of cases and discogenic or myofascial structures in the remaining cases. The treatment approach we used (i.e., early mobilization) may not be appropriate for neck pain arising from joint structures.” [Important]
KEY POINTS FROM DAN MURPHY

1) Common whiplash symptoms include neck pain, headaches, dizziness, visual disturbances, impaired concentration, and sensory changes in the upper extremities.

2) There are many who suffer from chronic pain from whiplash trauma. In this study, six months after being injured, the number of patients with chronic pain was between 30% - 49%.

3) Previous research has shown that there is a 35% prevalence of persistent whiplash symptoms at 6 months following a rear-end motor vehicle collision.

4) Being given a video that provides reassurance and basic advice about posture, early return to regular daily activities, range of motion exercises, and the use of pain-relief methods including ice, heat, and analgesics, reduced the incidence of chronic pain by between 8% - 11%.

5) The presence of persistent chronic whiplash symptoms at six months following injury is high, whether the patient is given the advice video or not.

6) There is “strong evidence to support the effectiveness of early active mobilizing exercises in acute whiplash patients.”

7) 32% of whiplash-injured patients are using pain medication for their symptoms 6 months after injury. [Long-term pain medication use is associated with a plethora of potentially catastrophic events, such as gastrointestinal bleeding (including fatal bleeding), liver failure, kidney failure, hypertension, pancreatic cancer, breast cancer, stroke and heart attacks. Why is it not acceptable for these patients to see a chiropractor for pain relief and avoid these potentially catastrophic events?]

8) Most pain from whiplash injury (50 to 65%) arises from the cervical zygapophysial joints. The treatment approach of giving an advice and mobilization instructional video to whiplash-injured patients “may not be appropriate for neck pain arising from joint structures.” [Important]

9) Whiplash with chronic pain syndrome “actually exists.” [IMPORTANT]

10) Giving the whiplash-injured patient a video that provides reassurance and advice, is not the solution to preventing chronic whiplash symptoms.