

Risk Factors for Prolonged Disability After Whiplash Injury: A Prospective Study

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FROM ABSTRACT:

Study Design. A prospective study of 135 patients with whiplash injury.

Objectives. To identify factors predictive of prolonged disability following whiplash injury.

Summary of Background Data. Although patients with whiplash associated disorders lack demonstrable physical injury, many exhibit prolonged disability.

Disability appears unrelated to the severity of the collision. **[THE KEY POINT]**

Methods. A total of 147 patients with recent whiplash injury were interviewed for putative risk factors for disability, and 135 were reinterviewed 12 months later to assess degree and duration of disability.

Bivariate and multivariate analyses were undertaken to measure the association between putative risk factors and measures of outcome (change in Neck Pain Outcome Score [NPOS] and visual analogue pain score [VAPS], return to work, still requiring treatment, settlement of claim).

Results. The bodily pain score and role emotional scores of the Short Form-36 health questionnaire showed a consistent significant positive association with better outcomes. **[Important]**

After adjustment for bodily pain score and role emotional scores, consulting a lawyer was associated with less improvement in NPOS, but there was no association with change in VAPS.

Consulting a lawyer was associated with a lesser chance of claim settlement and a greater chance of still having treatment after 1 year, but there was no significant association with a return to work.

The degree of damage to the vehicle was not a predictor of outcome.
[THE KEY POINT]

Conclusions. Short Form-36 scores for bodily pain and role emotional are useful means of identifying patients at risk of prolonged disability.

The findings support the implementation of an insurance system designed to minimize litigation.

[I like this because in my experience injured people hire lawyers when they believe that their insurance carrier is treating them unfairly.]

THESE AUTHORS ALSO NOTE:

The Quebec Task Force (QTF) on whiplash-associated disorders notes that whiplash injury "is usually self-limited, with a median time to recovery-measured by time to the end of disability compensation-of 31 days."

[Very Important: QTF definition of the "self-limiting" nature of whiplash injury was "end of disability compensation." This, of course, is bogus, because nearly all whiplash injured patients still have pain and other problems after they return to work, and they require more treatment. This cannot be considered as "self-limiting" or as patient recovery. How often do we treat a whiplash injured patient and they never missed any work and never received disability compensation? According to the QTF, these patients had recovered before they started care.]

QTF also notes that 10% of their cohort whiplash injured cases were "unable to resume normal activity 200 days postinjury."

"Time to the end of disability compensation and time to recovery may not always coincide, and it is possible that claimants may still experience pain and disability after settlement of their claim." **[I agree, except I would not use the word "may." Rather I would state:** Time to the end of disability compensation and time to recovery **rarely** coincide, and it is **probable** that claimants **will** experience pain and disability after settlement of their claim.]

"There is evidence that duration of disability from whiplash is unrelated to the degree of trauma." **[Important]**

A 1996 review of whiplash "concluded that evidence for a causal link between trauma and chronic symptoms was sparse." These authors "have drawn the same conclusion from a retrospective study of insurance claims in South Australia, in which likelihood of prolonged settlement was found to be unrelated to cost of vehicle repairs or whether the vehicle was written off." **[Very Important]**

Published evidence suggests that psychosocial effects from whiplash injury "may be a consequence rather than the cause of chronic pain following whiplash and that the most likely cause of pain is posttraumatic dysfunction of the cervical zygapophysial joints."

This prospective study attempts to identify risk factors that may predispose patients to prolonged disability following whiplash injury.

In this study, patients completed a Short-Form 36 (SF-36) Questionnaire within 6 weeks of whiplash injury. Patients were re-interviewed 12 months post-injury and recovery assessed based upon:

- 1) Improvement in Neck Pain Outcome Score (NPOS).
- 2) Improvement in visual analogue pain score (VAPS).
- 3) Whether regular treatment was still being received.
- 4) Return to work.
- 5) Settlement of claim.

The authors also evaluated prior workers' compensation or third party claims, prior neck pain, consulting a lawyer, and having attended a physiotherapist or chiropractor.

"Patients with radiologic abnormalities and/or neurologic signs were excluded, as were those with other significant injury." **[This is important because it indicates the most injured patients were not included in this study.]**

The SF-36 measures the patient's own perception of his/her physical and mental well-being. It has high test-retest reliability, good content validity, and good construct validity. The SF-36 includes 8 different subscales of functional status: Physical Functioning, Role Physical, Bodily Pain, General Health, Vitality, Social Functioning, Role Emotional, and Mental Health.

The Visual Analogue Pain Score (VAPS) "has good test-retest reliability, good construct and discriminant validity, and correlates well with other pain measure instruments."

RESULTS

37 patients were male.

98 patients were female.

Mean age of patients was 35.6 years.

"No outcomes showed any association with gender, and there was no consistent association between age and outcomes." **[Interesting]**

"Consulting a lawyer was associated with a worse outcome for all 5 outcome measures."

"Consulting a lawyer was also associated, on average, with an 11-fold greater chance of still receiving treatment, a 5-fold lesser chance of returning to work, and a 9-fold lesser chance of claim settlement at the end of 1 year."

However, these authors also note “patients with whiplash with worse pain and greater effects of anxiety and depression may be more likely to consult a lawyer.”
[In my experience, patients with greater injuries and more chronic pain require more treatment and consult lawyers when insurance company representatives deny appropriate and required treatment.]

“There was no detectable association between whether the vehicle was drivable after the accident and outcome.”

“A history of a previous motor accident claim (either third party or workers compensation) was associated with a 10-point lesser improvement in NPOS and a 1-point lesser improvement in VAPS after 1 year, both associations being statistically significant. A prior claim was associated with greater likelihood of still receiving treatment and lesser likelihood of a return to work or settlement of claim by the end of 1 year, but these associations were not statistically significant.”
[In my experience, previous injuries heal with fibrotic (weaker and stiffer) residuals, rendering these tissues less capable of adequately handling and dispersing the forces caused by a new trauma event. This results in greater injury, more pain, more treatment required, and poorer prognosis.]

Patients who had been treated either by a physiotherapist or chiropractor showed statistically lesser improvements in NPOS and VAPS. They were more likely to be still receiving treatment (medical or other) but there was no association with return to work or settlement of claim.”

[Not too bad. My experience as a chiropractor show that injured patients often turn to chiropractic as a treatment option of last resort, after other treatment options have not achieved acceptable clinical results. Consequently it is not surprising that such patients would still require treatment at one year after injury. Importantly, as noted, the physiotherapist or chiropractor were able to return these patients to work, despite their increased requirement for treatment, and it did not impair the settlement of their claims.]

DISCUSSION

“This study indicates that the best predictors of outcome are the SF-36 scores for Bodily Pain and Role Emotional, higher scores being associated with better outcome.”

“The bodily pain score is derived from questions on the degree of bodily pain and the extent to which pain interferes with normal work. Role Emotional score is derived from questions on reduction of time spent on work or other activities, accomplishing less than one would like, and not performing work or activities as carefully as usual, as a result of emotional problems such as feeling depressed or anxious.”

At one year, "11% of patients had not returned to work, 59% had not settled their claim, and 69% were still receiving treatment after 12 months, indicating that severely affected patients were well represented."

[Important, 69% of the patients were still receiving treatment for their whiplash injuries at one year! Obviously, the majority of whiplash injuries do not resolve in 6-8 weeks.]

Other studies have found "an increase in pain to be associated with a reduction in the rate of claim closure," even at 2 years post-injury.

This study found no consistent association between physical factors such as presence of a headrest or the degree of damage to the vehicle and chronic symptoms.

"It is possible that those patients with the most severe symptoms were, for that reason, more likely to consult a lawyer. If this were so, it could be argued that the apparent adverse effect of lawyers on the outcome was no more than a reflection of the fact that they saw the worst affected cases." **[Very Important]**

One can interpret the findings as "those who complain of greatest pain are also those most likely to consult a lawyer."

"Our findings indicate that the psychological response to the injury, as measured by the SF-36 scores for Bodily Pain and Role Emotional, are more useful predictors of outcome than physical factors such as the degree of energy transfer from the vehicle accident."

A further inference is that an insurance system designed to minimize litigation may have a beneficial effect on prognosis of whiplash injury. **[Interesting]**

"The degree of damage to the vehicle is not a predictor of outcome."
[THE KEY POINT]

KEY POINTS FROM DAN MURPHY

- 1) It is important to keep in mind that in this study, patients with radiologic abnormalities and/or neurologic signs were excluded, indicating that the most injured patients were not included in this study.
- 2) Disability from whiplash injury is unrelated to the severity of the collision. The degree of vehicle damage is not a predictor of outcome.
- 3) The cost of vehicle repairs is unrelated to the length of claim settlement.
- 4) Consulting a lawyer delayed claim settlement and increased treatment. This could be because "patients with whiplash with worse pain and greater effects of anxiety and depression may be more likely to consult a lawyer." "It is possible that

those patients with the most severe symptoms were, for that reason, more likely to consult a lawyer." "It could be argued that the apparent adverse effect of lawyers on the outcome was no more than a reflection of the fact that they saw the worst affected cases." One could interpret the findings as "those who complain of greatest pain are also those most likely to consult a lawyer."

- 5) Consulting a lawyer did not impair the patient's return to work.
- 6) Patients who had been treated either by a physiotherapist or chiropractor were more likely to be still receiving treatment at one year. This could also be interpreted as meaning that those with the most pain and worse response to medical management turn to physiotherapy or chiropractic.
- 7) Patients who had been treated either by a physiotherapist or chiropractor did not have impaired return to work or settlement of claim.
- 8) The Quebec Task Force (QTF) on whiplash-associated disorders defined recovery as "the end of disability compensation" and therefore subsequently declared whiplash injury as "usually self-limiting." This is bogus. This article notes that the "end of disability" is not the same as recovered, and that injured patients "may still experience pain and disability after settlement of their claim."
- 9) The QTF notes that 10% of their cohort whiplash injured cases were "unable to resume normal activity 200 days post-injury."
- 10) Chronic pain from whiplash primarily arises from the zygapophysial joints.
- 11) Abnormal psychological profile following whiplash injury may be caused by the chronic post-whiplash injury chronic pain.
- 12) We should use The SF-36 and The Visual Analogue Pain Score when evaluating our whiplash-injured patients. The SF-36 can be taken and scored by our patients through the website www.myologic.com.
- 13) A history of a previous motor accident claim worsened the prognosis for recovery, return to work, and settlement of claim. This may indicate greater injury to already weakened tissues.
- 14) At one year, 11% of patients had not returned to work, 59% had not settled their claim, and 69% were still receiving treatment, indicating that the majority of whiplash injuries do not resolve in 6-8 weeks.
- 15) More severe pain is associated with a reduction in the rate of claim closure, even at 2 years post-injury.
- 16) An insurance system designed to minimize litigation may have a beneficial effect on prognosis of whiplash injury.