

A descriptive analysis of disorders in patients 17 years following motor vehicle accidents

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L. Bunketorp, L. Nordholm and J. Carlsson

FROM ABSTRACT:

Whiplash-associated disorders (WAD) are described and analysed 17 years after involvement in a motor vehicle accident.

A self-report questionnaire was mailed to 121 patients registered at emergency departments in Gothenburg in 1983 because of neck complaints following a car collision.

The questionnaire contained items on symptoms referred to WAD, treatment, work disability, involvement in settlement of claims, medical disability and the Neck Disability Index (NDI).

Of the 121 patients, 108 (89%) chose to participate in the present study.

Fifty-nine (55%) had residual disorders referable to the original accident.

Neck pain, radiating pain and headache were the most common symptoms.

One-third of the patients with residual symptoms suffered from work disability, compared to 6% in the group of patients without residual disorders.

All 25 patients who had reached a final claim settlement (42%) had a poor outcome, and 15 of the claiming patients had been assigned a medical disability ranging from 5 to 30%.

Patients with WAD reported a significantly higher score on the NDI than those without residual disorders.

There was no significant correlation between the patients' degree of medical disability and the scores on the NDI.

The results of the study show that approximately half of the patients with neck complaints following motor vehicle accidents in Gothenburg in 1983 suffered frequent residual symptoms 17 years after the accident, mostly comprising neck pain, radiating pain, and headache.

The residual disorders contributed to the patients' overall disability.

THESE AUTHORS ALSO NOTE:

Motor vehicle accidents frequently cause prolonged neck pain, physical complaints, and disability.

Late whiplash syndrome is defined as still having symptoms after 6 months.

Whiplash-associated disorder (WAD) symptoms include: neck pain, stiffness, radiating pain in the shoulder/arm/hand, headache, fatigue, concentration difficulties, dizziness, visual and auditory symptoms, emotional disturbances such as anxiety and depression, and general irritability.

Neck pain and headache are the most frequently reported complaints following whiplash injury.

“Residual symptoms are more prevalent among women and older patients.”

The previous longest follow-up study on whiplash signs and symptoms is 15 years after the initial accident.

[Squires B, Gargan MF, Bannister GC (1996); Soft-tissue injuries in the cervical spine: 15-year follow-up. J Bone Joint Surg Br 78:955–957]

This study evaluated 108 soft tissue injury patients (66 women and 42 men) 17 years after they were involved in a motor vehicle accident.

The authors excluded 7 patients because they suffered a “significant dislocation of a cervical vertebra” which they defined as greater than 3 mm.

THE FOLLOWING WERE ASSESSED:

- (1) Neck Pain Intensity Assessment.
- (2) Frequency of Spontaneous Neck Pain and Neck Pain Aggravated by Cervical Motion Assessment.
- (3) Pain Location and Characteristics Were Assessed With a Pain Drawing.
- (4) Intensity of Radiating Pain Assessment.
- (5) Frequency of Radiating Pain Assessment.
- (6) Intensity, Location, Characteristics and Frequency of Headache were Assessed.
- (7) Related whiplash-associated symptoms, such as concentration difficulties, fatigue, dizziness, visual disturbances and tinnitus were documented.

(8) Treatments over the last 5 years, including the intake of analgesics, was documented.

(9) Disability was assessed.

(10) Sick leave in the past year was assessed.

The Neck Disability Index (NDI) was used to assess neck-related disability.

A 100-mm visual analog scale (VAS) was used to assess symptom intensity.

"The VAS is considered to have a high degree of reliability and validity."
[Carlsson AM (1983) Assessment of chronic pain. Aspects of the reliability and validity of the visual analogue scale. Pain 16:87-101]

RESULTS

55% of the patients considered themselves to have residual symptoms linked to the motor vehicle accident 17 years before.

An equal percentage of men and women claimed residual symptoms, indicating that in this study, residual symptoms in women were not more common.

45% considered themselves fully recovered from their injury 17 years before.

"Spontaneous neck pain and pain radiating into the upper extremities were the most common symptoms, closely followed by neck pain aggravated by cervical motion and headache."

"Other associated symptoms comprised difficulties in concentrating, fatigue, dizziness, tinnitus and visual disturbances."

88% had spontaneous neck pain.

80% had neck pain aggravated by cervical motion.

36% reported spontaneous neck pain every day.

34% reported spontaneous neck pain several times a week.

19% reported spontaneous neck pain several times a month.

46% reported neck pain aggravated by cervical motion every day.

19% reported neck pain aggravated by cervical motion several times a week.

15% reported neck pain aggravated by cervical motion several times a month.
83% of the patients with residual WAD reported radiating pain in the upper extremities.

41% reported radiating arm pain every day.

25% reported radiating arm pain several times a week.

17% reported radiating arm pain several times a month.

“Women reported a significantly higher frequency of radiating pain than the men.”

78% of the patients with residual WAD marked central and/or bilateral neck pain on the pain drawing.

57% of the patients with residual WAD marked pain radiating to the upper extremities on the pain drawing.

69% of the patients with residual WAD reported headache, with 64% having occipital headache and 54% having forehead or orbital locations.

49% of the patients with residual WAD complained of fatigue.

39% of the patients with residual WAD complained of concentration difficulties.

36% of the patients with residual WAD complained of dizziness.

32% of the patients with residual WAD complained of visual disturbances.

19% of the patients with residual WAD complained of tinnitus.

53% of the patients with residual WAD used analgesics.

29% used analgesics 2-6 times per week.

46% used analgesics 7-30 times per week.

17% used analgesics more than 30 times per week. **[WOW]**

Chiropractic was not mentioned under treatment.

“Massage and heat treatment were considered the most helpful among the patients with WAD.”

Neck Disability Index show that the greatest difference between the WAD group and the recovered group was headache and lifting ability.

34% of the patients with residual WAD reported having some sort of sick leave, or full disability payments in the past year due to WAD caused by injury 17 years before.

87% of patients who received medical disability were dissatisfied with the outcome of the claim settlement.

DISCUSSION

In this study, residual WAD symptoms were present in 55%.

In a 15-year follow-up study, 70% of the patients continued to complain of WAD symptoms.

[Squires B, Gargan MF, Bannister GC (1996); Soft-tissue injuries in the cervical spine: 15-year follow-up. J Bone Joint Surg Br 78:955–957]

In this study, women have a higher frequency of WAD, yet “sex appeared to have no influence on residual symptoms in the long term.”

Neck pain , radiating upper extremity pain, and headache are the most common WAD symptoms.

A 2000 cohort study concluded that drivers with reported whiplash injury, have a nearly three-fold increased risk of neck or shoulder pain 7 years after the collision as compared with controls.

[Berglund A, Alfredsson L, Cassidy JD, Jensen I, Nygren A (2000) The association between exposure to a rear-end collision and future neck or shoulder pain. J Clin Epidemiol 53:1089-1094].

In a 2001 cohort study, these same patients with whiplash injury had an increased risk for headache, thoracic and low back pain, as well as for fatigue, sleep disturbances and ill health, compared to the unexposed comparison group, by a range of 1.6–3.7.

[Berglund A, Alfredsson L, Jensen I, Cassidy JD, Nygren A (2001) The association between exposure to a rear-end collision and future health complaints. J Clin Epidemiol 54:851–856].

“It is not likely that the patients exposed to motor vehicle accidents would over-report or simulate their neck complaint at follow-up 17 years after the accident, as all compensation claims will have been settled.”

“The pain drawings showed two distinct distributions: central in the neck alone, and radiating into the shoulder/arm/hand.”

“There was a significant correlation between the intensity of radiating pain and the patient’s score on the NDI.”

In the 15-year follow-up study, “18% of the symptomatic individuals had taken early retirement due to health problems which they related to the whiplash injury.”

In this study, 25% of patients with residual WAD had a medical disability.

"The degree of medical disability due to WAD usually ranges from 1 to 15%. In some cases it might be judged as high as 50%."

[Holm L, Cassidy JD, Sjögren Y, Nygren Å (1999); Impairment and work disability due to whiplash injury following traffic collisions. An analysis of material from the Swedish Road Traffic Injury Commission. Scand J Public Health 2:116–12314].

CONCLUSIONS

Approximately half of the patients with neck complaints following motor vehicle accidents had residual symptoms 17 years later.

The residual symptoms mostly comprised of neck pain, radiating pain, and headache.

The residual WAD symptoms contributed to the patients' overall disability.

KEY POINTS FROM DAN MURPHY

- (1) This 17 year follow-up study on whiplash injury residuals may be the longest in the literature to date.
- (2) 55% of these patients had residual disorders referable to the original accident 17 years before.
- (3) Neck pain, radiating upper extremity pain, and headache were the most common symptoms.
- (4) Other symptoms include fatigue, concentration difficulties, dizziness, visual and auditory symptoms, emotional disturbances such as anxiety and depression, and general irritability.
- (5) A 3mm displacement on the lateral cervical radiograph [which most of us have seen on occasion] was considered a "significant dislocation of a cervical vertebra."
- (6) These researchers used both the Neck Disability Index (NDI), Pain Drawings, and the Visual Analog Scale (VAS), [all of which most of us use or should be using].
- (7) Over half of the patients with whiplash residuals continue to take analgesic medication, and most of them are taking these drugs daily or multiple times per day.
- (8) About a third of the whiplash residual patients have a disability.