

## Motor Risks- Whiplash

### Evidence Review In Support of *The Whiplash Book*

In 2001, The Association of British Insurers began an extensive programme of research into whiplash neck injury, funded by motor insurers and managed by LRMS (at BRE). *The Whiplash Book* is among the first products of that programme.

*The Whiplash Book* is designed primarily for people who have a whiplash neck injury and others who have been involved in a road traffic accident. It is a short book of general advice and explanation about the injury and what to do about it. It is intended to inform the reader of methods they can employ to help themselves to recover more quickly and, avoid chronic pain and disability.

At present, information about whiplash neck injury is propagated by a wide variety of routes. Unfortunately, there are many inconsistent messages and not all beliefs are based on objective research evidence. There are of course gaps in the research evidence, but sufficient certainty to justify the production of an evidence based advisory book.

The evidence used as the basis for the book is briefly reported here.

#### Methodology

The first major and comprehensive review of the whiplash neck injury literature was undertaken by the Quebec Task Force in 1994 and published in *Spine* (1995) Vol.20 (8S) p 1-73. The main findings of this work were used as a historical baseline for this review. Work published since then was used to refine these 1994 findings and fill some of the gaps that existed in knowledge at that time.

#### *Classification of Whiplash Neck Injury – within a few days of the injury event.*

There is consistent opinion that five categories of whiplash neck injury are justified and appropriate as a basis for treatment decisions and opinion of prognosis. These are:

Grade	Assessment Details
Grade 0	No neck complaint - no physical signs
Grade I	Neck symptoms of pain, stiffness, tenderness. - no physical signs
Grade IIa	Neck symptoms (as above) - including point tenderness, but with normal range of motion
Grade IIb	Neck symptoms (as above) - with point tenderness and with abnormal range of movement
Grade III	Neck symptoms (as above) - with neurological signs including decreased/absent tendon reflexes, weakness, sensory deficit.
Grade IV	Neck symptoms - with fracture or dislocation

The prognostic value of these will depend on how long after the event they are made and do not take into account complicating factors such as those established by psychosocial research.

*The Whiplash Book* is concerned with grades I, II and grade III only.

Clear guidelines for care were established in 1994:

Recommendation	Notes
Early return to usual activities	Grade I: immediate Grade II and III: as

Soft collars are not recommended.	soon as possible. But: maximum 72 hours when used for Grade II and III.
Prescription medication – a limited role	Grade I: none Grade II: NSAIDs or analgesics Grade III: opioid analgesics. (some use to relieve insomnia or promote increased normal activity could be useful) Chronic Pain: minor tranquilizers and anti depressants may be needed as part of a multidisciplinary approach.
Rest, seldom indicated.	Duration should always be limited (< 4days)
Manipulation, for pain relief and facilitating early mobility is useful.	The treatment should be accompanied by reassurance of a good prognosis, and should be limited (no more than 6 weeks)
Physiotherapy, (as for manipulation)	As for manipulation.
Surgery rarely indicated	But for grade III in presence of progressive neurological deficit or persistent arm pain.
Patient advice is essential.	WAD is usually self-limiting. Activity and normal work are usually appropriate.
Prevention of chronicity is the most important principle.	If symptoms and signs are not improving at six weeks, multidisciplinary evaluation is necessary.



Signs that a patient may be at risk of developing chronicity are listed as:

- No indication of improvement after 1 week.
- Getting progressively worse after 1 to 2 weeks.
- Symptom magnification.
- Non compliance with recommendations.
- Seeks rest, not involved in usual daily responsibilities.
- Seeks more drugs, or drugs are not having effect.
- Cannot return to work, makes no attempt to return to work (usual activities).
- Emergence of secondary gain issues (social, vocational, financial) related to illness behaviour.
- Becomes progressively dysfunctional.
- Signs or symptoms of depression.

These findings (from 1994) were subject to intense (professional) debate in the following years and further research work. However, in the absence of qualification by credible research since 1994, the above findings remain the current view.

#### The new evidence review

Listed below are the key findings of the current review exercise. These were used along with the surviving 1994 findings to generate appropriate, evidence-based messages for people involved in road traffic accidents.

There are several types of information required for the purposes of producing evidence-based advice to whiplash neck injury victims. Some of these refer to the effectiveness of written advice in changing unhelpful beliefs and reinforcing helpful beliefs.

Those findings, which will have a more general interest to personal injury insurers, are selected below. Our own comments are added [ ] , where helpful.

Much of the scientific research in this field remains of poor quality. The usual criteria used to grade the strength of each paper's methodology would not be encouraging so a more qualitative methodology was employed in this review. Instead of grading the research and then extracting key findings, key findings were rated as follows:

- \*\*\* Generally consistent findings in multiple reports.
- \*\* Consensus based on balance of various findings
- \* Limited information.

In total, 149 new papers (published since 1994) were included in the review.

#### Bio-mechanics and Nature of Injury

\*\*\* Physical injury to spinal structures is possible (given the forces sometimes involved) and potential injury to bone, disc or nerve may occasionally require further investigation. Clinical evidence suggests this is rare. \*\*Many RTA's don't involve high forces.

\*\* Most whiplash injuries probably involve only soft tissues (e.g. muscle).

\*\* Serious damage rare/unlikely.

#### Epidemiology

\*\*\* Symptoms of neck pain and stiffness are common even without suspected predisposing trauma. Pain does not necessarily imply residual [or causative] damage in chronic cases.

\*\*\* Symptom status at three months, strongly predicts status at 2 years (or more).

\*\*\* Long term problems likely if symptom status at three months is poor and deteriorating.

\*\*\* Partially prognostic risk factors for long term symptoms include – women – older patients – high level of symptoms at the outset – high prevalence of pre trauma headache – greater number of symptoms – degenerative signs on x-rays.

#### Our Comment

[The quantitative value of each prognostic risk factor on its own, or in combination, is not well known, but is the subject of research currently being sponsored by ABI and managed by LRMS]

#### Clinical

\*\*\* Clinical outcome at 2 years can be predicted at 3 months [they will very often be unchanged after 3 months]

\*\*\* Non-collision factors are important in the development of chronicity (including fibromyalgia)

#### Our Comment

[Fibromyalgia is increasingly proposed to be a possible consequence of a whiplash neck injury event. A detailed review of Fibromyalgia was prepared by LRMS for ABI in October 2000. While chronic pain states are possible as a result of soft tissue injuries it is not clear that Fibromyalgia should be included in this category. Fibromyalgia affects all quadrants of the body.]

\*\*\* The most common symptoms on early presentation are neck pain ~ 100%, neck stiffness ~ 70%, Low Back Pain ~ 60%, shoulder pain 40 – 70%,

#### Investigation

\*\*\* MRI is unhelpful except where surgery is likely, assessed on the basis of other evidence.

\*\*\* MRI shows that abnormalities are commonplace, even among those who are free of any symptoms [before or after RTA].

\*\*\* X-rays unhelpful unless fracture is suspected or patient is unconscious.

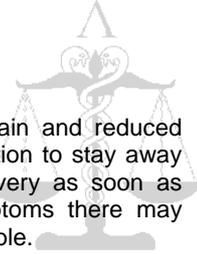
#### Psychology

\*\* An RTA can trigger emotional/cognitive changes.

\*\*\* Psychological disturbance develops in the first three months.

#### Our Comment

If these psychological disturbances are a consequence of other symptoms (e.g. pain and reduced mobility) or even a consequence of secondary events following an RTA (e.g. instruction to stay away from work) then it is clearly important to address symptoms and barriers to recovery as soon as possible. If these psychological disturbances are the cause of chronicity of symptoms there may however be an optimum time to intervene, as opposed to intervention as early as possible.



\*\*\* Catastrophising is a prognostic risk factor for chronicity.

\*\* Negative expectations, symptom and disability amplification and, attribution of cause are important risk factors for chronicity.

\*\*\* Chronicity depends on the presence of secondary biopsychosocial influences. Chronicity is not inevitable.

#### Treatment

\*\*\* Recovery is fastest if return to normal pre accident activities occurs as soon as possible.

\*\*\* Neck collars are not helpful for grades I,II and III.

\*\*\* Psychosocial interventions are helpful (beliefs, attitudes, distress, tension, uncertainty)

\*\*\* Manual therapy can be useful if re activation is not spontaneous, but its purpose is to help in the return to normal activity.

[Manual therapy can provide temporary pain relief and the confidence to try normal activities in a supportive setting]

\*\*\* Self-exercise is helpful for early recovery.

\*\* Ill-directed and/or blanket investigation/treatment may contribute to chronic symptoms.

\*\* Generalisations are helpful in terms of communication, but individual cases may need individual programmes of help.

\* Cognitive behavioural therapy may be helpful.

#### Our Comment

A number of post injury, service providers use a fixed programme of care for grades I, II and III whiplash neck injury. Such packages often include passive physiotherapy. The strong suggestion from the evidence is that such uniform packages may do harm to some people.

Of course it is easier to administer a package approach to injury management and there is good evidence that the right sort of physiotherapy is helpful if it encourages re activation (of those who find it hard to get going by themselves) and, temporarily reduces symptoms. It would probably be more correct to build in a broad assessment of individual cases before deciding what care is indicated.

The authors of the review tend to the view that acute organic injury does occur if there are signs (grade II or higher), that distressing symptoms, if they persist, can reduce psychological ability to cope and that psychosocial factors can cause symptoms to persist.

Overall, it is our impression that while RTA's and acute symptoms have an effect on coping and reactivation it is secondary biopsychosocial influences which are the most immediate cause of chronicity. Of course without an injury/distressing event it is much less likely (but not impossible) that biopsychosocial factors on their own would lead to chronic pain conditions. Injury/distressing events are not uncommon, and may have nothing to do with the immediate circumstances of involvement with an RTA.

It should also be born in mind that a high proportion of the population have persistent neck pain but live with it with almost no ill effects. An RTA or ill advised decisions thereafter may simply be a trigger which makes the prevalent pain less-easily managed.

Given these complex interdependent choices it is easy to see why the courts might tend to assign the RTA event as the proximal cause of a chronic pain condition, that may be the subject of a claim. In terms of temporality, an RTA is an easily identified event of potential significance. However, the contribution made by biopsychosocial factors and the effects of the RTA on coping abilities suggest that causation should be assessed very carefully in each case, and on its own merits. The medico-legal issues surrounding body-mind-body interactions are not yet fully developed in case law. Increased risk is not, in our view identical to material contribution.

Key messages for the advice book

- Accident victims should be carefully assessed in case of serious injury.
- Reassurance and management of expectations is essential.
- Early, graduated return to normal activities is the best way to recover (grades I,II and III).
- Therapy designed to restore normal activity should begin within a few weeks, in cases where there is deterioration.
- Cases that continue to deteriorate should be assessed and treated biopsychosocially.

Additional Comment

Immediate assessment of cases at A&E departments and GP surgeries is variable and not always optimal or accurate. ABI has recently sponsored work by A&E specialists to design an appropriate whiplash neck injury assessment and management regime for A&E departments. The regime is now the subject of research into its effectiveness and if found to be of value, will be made available to A&E departments generally. Early results show that the regime is successful, a training pack for the installation and use of the regime has been developed.