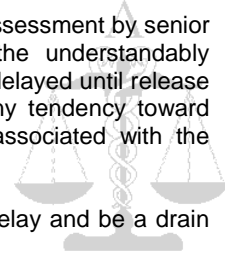


Motor Risks- Whiplash

IG Stiell et al. *Journal of the American Medical Association*. October (2001) Vol. 286 # 15 p 1841.

Full immobilisation (neck brace and back board) following minor RTA is still commonplace and, internationally so. Evidence reviews have consistently shown that of these precautionary immobilisations, 90% are unnecessary.

It is routine practice to keep the patient with neck pain immobilised until x-ray and assessment by senior clinician. The consequences of false negatives are potentially lethal, hence the understandably precautionary approach. The consequences of false positives are that pain relief is delayed until release from restraints (in case of vomiting), anxiety, discomfort and a strong spur to any tendency toward catastrophising. Anxiety and catastrophising have been shown to be strongly associated with the development of chronic pain problems.



Unnecessary immobilisation and x-ray may contribute to waiting times, treatment delay and be a drain on health service resources.

The study reported here was based on A&E attendance in Canada. It was designed to provide estimates of risk for serious pathology and, define a set of criteria to allow early release from immobilisation, without x-ray.

The study involved 8924 adults who presented with blunt trauma and, had stable vital signs and, had no brain damage.

All were processed as usual, involving X-ray, CT scan and then asked to volunteer for follow up telephone interview.

Risk factors confirming the need for full investigation:

- Dangerous mechanism; OR = 5.2 (95% CI = 3.7 to 7.3) i.e. extreme violence suspected.
- Age of victim >65 years; OR = 3.7 (95% CI = 2.4 to 5.6)
- Parasthesias in extremities; OR = 2.2 (95% CI = 1.4 to 3.3)

Risk factors confirming no need for full x-ray or CT scan investigation: (Odds Ratios below unity demonstrate a protective effect)

- Delayed onset of neck pain; OR = 0.4 (95% CI = 0.3 to 0.7)
- Absence of midline tenderness neck; OR = 0.5 (95% CI = 0.3 to 0.8)
- Able to rotate neck 45°; OR = 0.04 (95% CI = 0.01 to 0.3)
- Simple rear end RTA; OR = 0.08 (95% CI = 0.03 to 0.2)

Obviously the patient would not be asked to rotate the head until preliminary checks had provided reassurance.

No other risk factors were statistically significant.

Combining these findings it was possible to define a routine approach to RTA victims which would reduce the use of immobilisation and clinical investigations (if the victim were to trust them).

Proposed Routine:

1) Is the patient over 65, dangerous injury mechanism, or, parasthaesia in the extremities. If so, continue with full investigation and precautionary approach.

If not:

2) Are there low-risk factors such as simple rear end RTA, sitting position in A&E, ambulatory since event, delayed onset of neck pain, or, absence of midline c spine tenderness.

If 2, determine range of motion.

3) Is patient actively able to rotate neck 45° to left and right?

No need for x-ray etc.

The authors claim 100% sensitivity (95% CI = 98 to 100) and 42.5% specificity (95% CI = 40 to 44) and so, if applied, should halve the use of precautionary investigations in Canada.

Comment

A similar study in the UK finds that around 30% of whiplash cases have some mid-line tenderness. A high proportion of low energy RTA events would therefore still result in x-ray investigation as a result of this routine, but a high proportion would not, and would therefore be spared the aggravation of anxiety and catastrophising.

Reduced use of x-ray etc. should reduce the degree of anxiety and discomfort, but examination at the roadside would be needed to prevent over-use of immobilisation in the first place.

Patient expectations of health care in North America are different from the UK. It may be more difficult to persuade a North American that an investigation is not necessary.

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