Making Sense of Treatments for Whiplash Injuries: A Deeper Look at an Important Study – What’s the Bottom Line?

By Marj Belot, July 2013. Marj Belot has been an associate physiotherapist at West 4th Physiotherapy Clinic for 5 years, a practising physiotherapist since 1986, and an instructor with the Orthopaedic Division of CPA since 2003. Due to her interest in and knowledge of WAD, she completed an M.Sc Thesis on a WAD related topic, is the PABC-ICBC Liaison and has been a guest lecturer to the UBC MPT students for their WAD training since 2008.

Overview | Key Findings | Clinical Relevance | Bottom Line

Managing Injuries of the Neck Trial (MINT): a randomized controlled trial of treatments for whiplash injuries was published in 2012. There have been very few published large RCTs regarding whiplash associated disorders and physiotherapy management, so Deb Monkman (PABC’s Clinical Librarian) and I thought it would be a good idea to review this report. The review is a little lengthy as the full report was 158 pages.

The study consisted of two very large pragmatic RCTs including 3851 participants attending emergency rooms (ER) in the UK with acute whiplash, Grades I-III. There were four arms to the study. Upon visiting the emergency department, participants received usual care (verbal and written advice on pain control and medication, advice to exercise, sleeping advice and a variety of other messages depending on the department) or “active management” consisting of verbal advice and a whiplash education booklet (positive prognosis, encouragement to return to normal activities as soon as possible, exercise and symptom self-management, advice against use of a collar). Randomization was done by health care region to reduce contamination. If participants were still experiencing symptoms at 3 weeks post ER, they were further randomized to one, forty to sixty minute educational physiotherapy visit, or, a course of physiotherapy which consisted of up to six visits over eight weeks, the latter customized to participants needs (“physiotherapy package”). The customized physiotherapy sessions included reassurance, education regarding posture and positioning, goal setting, pacing, pain and recovery as well as effective coping strategies, brief psychological interventions e.g. managing travel phobias, manual therapy (including thoracic but not cervical manipulation), and, exercise prescription. Exercises targeted spinal and shoulder mobility, postural muscle retraining, proprioception and relaxation. In the single physiotherapy education session participants had opportunity to have their questions answered and have exercises reviewed and demonstrated, reinforcing the advice they were given in the first phase of the study. If physiotherapists identified severe stress reactions or travel phobias they continued to treat the patients but also requested referral to a psychologist.

Physiotherapists participating in the trial received 1.5 days of training to ensure adherence to the study protocol, which was developed following a review of relevant research. For example, physiotherapists were asked not to include modalities due to lack of research support in this subacute population. Each treatment session was 20-30 minutes.
The researchers also included a qualitative component, which involved in depth interviews of 20 participants, regarding their experience with whiplash and with the study.

Participants filled in study questionnaires at 2 weeks, and 4, 8 and 12 months following their initial ER visit. The primary outcome measures were the Neck Disability Index and the EQ-5D (a crude quality of life measure used to perform an economic analysis). Secondary outcome measures included components of the health related quality of life measure the SF-36 as well as number of work days lost.

Key Findings

Some of the key findings of the study were surprising and sobering:

- **Addition of a whiplash booklet** did not make enough of a difference on Neck Disability Index (NDI) scores or quality of life measures to recommend that it be instituted. There was also no difference in work days lost between the two emergency department protocols.

- **Physiotherapy did not make enough of a difference** on Neck Disability Index (NDI) scores, or quality of life measures to recommend that it be routinely covered, particularly beyond one visit. When physiotherapists were allowed to decide how many visits were appropriate the median and mean number of treatment visits was three, in addition to the initial assessment (range 0-23). Only 5% of physiotherapy patients attended for more than 6 sessions.

It is surprising that physiotherapy did not make a significant difference to NDI scores, on average.

Could this be due to the large heterogeneity of the study group? Previous studies have found that there are 10-20% who tend to have persistent, severe disability. In this study 18% of participants had persistent pain and disability. The authors did do subgroup analysis to determine if injury severity (baseline WAD grade), pre-existing neck pain or, psychological risk factors (high levels of post-traumatic stress), made a difference to recovery rates. In contrast with other research in this area, they found that it did not. Physiotherapists were trained to screen for such problems and provide education around fear of driving and fear of movement.

Could the results be due to the fact they only had 1-6 physiotherapy visits? My clinical experience tells me that there are always certain clients, particularly those at risk of chronic disability, who require more guidance and intervention to maintain forward momentum. Did the physiotherapists in the study feel pressure to adhere to the study protocol?

It is important to note, the physiotherapy package did reduce lost workdays on average, by four days at four months relative to single session of physiotherapy. However, the authors were only examining participant and National Health Service costs, therefore, these cost savings to society were not included in the author’s economic analysis! The additional cost of a course of physiotherapy was approximately $223. Unfortunately, we may have to share some of the credit with additional health care practitioners.

Participants were not encouraged but were free to seek additional care in all arms of the study and did so, which is probably the most significant problem with the study, and means all arms were contaminated with additional treatments that were uncontrolled, including counseling, massage, osteopathy and chiropractic. This was the “pragmatic” part of the pragmatic RCT. The fact that
manipulation was excluded may have also been an issue as the largest out of pocket chiropractic costs were in the physiotherapy package arm of the study. This group also had the highest costs for diagnostic tests including imaging. It would be interesting to know if the chiropractors or physiotherapists drove the additional investigations.

Clinical Relevance

From a clinical standpoint, the most interesting and reassuring part of the study was the qualitative portion as participants expressed that they felt physiotherapy was valuable to them and some expressed that they wished they’d had earlier referral to physiotherapy. They found the patient specific advice, and review, explanation and demonstration of exercises, as well as discussion of appropriate exercise parameters and guidance regarding returning to activity, to be particularly helpful. I’m sure this is what we all do every day with our WAD clients. I don’t believe a booklet can replace these aspects of treatment.

I think the study was well designed but would have been better if additional treatments were controlled. They should have also taken in to account the cost-benefit of reduced work absence.

Unfortunately, there remain many gaps in the research knowledge regarding optimal management of people with WAD, particularly those at risk of chronic disability. Michele Sterling confirmed at her WAD course at Whistler in 2011, that the heterogeneity of people with WAD remains a huge stumbling block to designing a useful RCT. At that time, the University of Queensland research group decided they need to focus on answering background questions before using huge personnel and funding resources on another RCT that does not answer the questions it was designed to answer.

Bottom Line

From a clinical perspective, the bottom line is we should be regularly measuring and monitoring the progress of our clients with WAD to know whether or not they are making forward progress. We should also be cautious about having too many practitioners involved with the care of our clients. It makes it difficult to evaluate the effect of our treatments and may impede their progress.

References: