Review of *"A randomized controlled trial comparing manipulation with mobilization for recent onset neck pain"*

by Associate Professor Phillip Ebrall, September 2010

The following comments relate to a 2010 paper[1] published by researchers from the University of Sydney that suggests there is no difference in outcomes between mobilisation and manipulation of the neck for recent onset neck pain.

There are quite a few aspects of the methodology that make it difficult to draw a meaningful conclusion:

1. We don't know 'who did what', in other words, we don't know whether the physiotherapists performed the manipulations or whether the chiropractors performed the mobilisations;

2. We do know the statistician randomised all subjects into two equal groups for intervention but the providers of the intervention were certainly not equal. There were many more subjects (125) treated by physiotherapists than the number (56) treated by chiropractors. Each physiotherapist recruited an average of just under 18 subjects while each chiropractor recruited an average of just over 11. We do not know the range of patients treated by either group so it is possible one or two physiotherapists provided the majority of treatments;

3. A statistical process called 'late randomisation' meant that treatment had commenced in a number of cases before the clinical decision was made to use manipulation. Even though this group of subjects is small, about 8%, it is sufficient to weaken the outcomes;

4. There is no evidence the patients were matched by age. This is a real concern in a group of subjects that ranges from 18 y to 70 y. The attitudes to pain of an adolescent subject who is Gen-Y are different to those of an ageing baby-boomer, especially in terms of the biopsychosocial dimensions. This significantly weakens the measurement of pain as an outcome;

5. There are difficulties with the inclusion and exclusion criteria about past accident or injury. Patients were excluded if they had neck pain related to a motor vehicle collision or other significant trauma, yet there is no provision for identifying patients with residual, cyclical pain from such an event that could well see them experience a month or so of no pain and then suffer a recurrence classified as 'recent onset'. This is a real concern given 63.2% of subjects had a past history of neck pain;

6. There are difficulties with the inclusion and exclusion criteria about arm pain. Patients were excluded if they had a primary complaint of arm pain yet subjects were included with concomitant symptoms such as upper limb (arm) pain and there is no protocol reported for determining whether this pain was primary or concomitant. This is a real concern given 79.1% of subjects reported arm pain;

7. There were 64.3% of subjects with neck pain and headache and this creates difficulties for determining the optimal intervention. Cervicogenic headache is thought to arise from the upper cervical spinal nerves due to their convergence onto the trigeminal sensory pathways. This means there could have been two subgroups within the total cohort that had significantly different clinical presentations; those with upper cervical dysfunction presenting with neck pain

and headache, and those with lower cervical dysfunction, with or without arm pain. These two presentations have different treatment protocols yet the outcomes are thought to measure one common treatment protocol;

8. An equivalent treatment regime of four treatments over two weeks was forced onto all subjects once the decision was made about 'how' to treat (mobilise or manipulate). This prevented clinical judgment about frequency and duration of care for individual subjects and could significantly weaken the clinical outcomes in many patients;

9. It appears the control of other intervention was poor and this could bias the results. In particular, 38.6% of subjects also used pain-killers during the study period;

10. It appears there was no control nor matching of subject gender. This has resulted in many more men (42.9%) receiving manipulation than mobilisation (27.5%). In other words, many more women received mobilisation and this could bias the results.

Given the above this report would appear to contribute very little to advancing our understanding of different treatment approaches to patients with recent onset neck pain.

It most certainly can not be used to suggest manipulation produces outcomes that are no different to those obtained with mobilisation, largely provided by physiotherapists.

More important, this paper has no power to measure the outcome of the chiropractic adjustment in patients with moderate, recent onset neck pain.

Steps that could be taken to raise some of these points in the academic arena would do little to serve us well, as despite methodological limitations, this is prepared by respected researchers, comprising content pertaining to the physiotherapy profession. If anything, it potentially flags some considerations for the training of physiotherapists wishing to conduct neck manipulation techniques without post-graduate qualifications.

However the work does point to a direction chiropractors need to take in research. The first step would be a descriptive study of how a typical chiropractor actually treats patients with moderate, recent onset neck pain and the clinical decision-making around patients with related complaints such as arm pain and/or headache.

Once this is known a prospective study could be undertaken which measured the outcomes in terms of patient benefit including the return to work or to normal activities of daily living, the cessation of pain, and the restoration of health and wellbeing in terms of Quality of Life. This study would control for age and gender, be specific with the inclusion criteria, more flexible with treatment number and frequency, and would control for prior and concurrent treatment.

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1. Leaver AM, Maher CG, PhD, Herbert RD, Latimer J, McAuley JH, Jull G, Refshauge KM. A randomized controlled trial comparing manipulation with mobilization for recent onset neck pain. Arch Phys Med Rehabil 2010;91 (Sep):1313-8