

Physiotherapy for neck and back pain

We need to know who will benefit from which intervention

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Spinal pain is not a new problem. Back strain is mentioned in the oldest surviving surgical text, the Edwin Smith papyrus from 1500 BC. However, the place of mechanical spinal pain in medicine has changed dramatically over the centuries. As life expectancy and general health conditions have improved, neck and back pain have become major causes of morbidity and health expenditure.¹ Back pain was recently estimated to affect around 17.3 million people in the United Kingdom at an annual cost of £1bn (\$1.9bn; €1.4bn) to the NHS and an additional £565m to private healthcare providers.¹ The recent publication of three papers in the *BMJ*, including one in this issue, addressing the physiotherapeutic and manipulative treatment of spinal pain is therefore timely (p 75).²⁻⁴ It also coincides with the release of guidance from the Arthritis and Musculoskeletal Alliance.⁵

The alliance has brought together a multidisciplinary group to evaluate systematically the evidence for various interventions in spinal pain and determine clinical standards for their delivery. The guidance emphasises conservative management in the community by a variety of health professionals including physiotherapists, chiropractors, osteopaths, and musculoskeletal physicians. Only a small proportion of patients with so called red flag signs indicating serious underlying pathology should be referred without delay to specialist services. The intervention pathway suggested for mechanical low back pain starts with education and puts emphasis on activity, return to work, and avoidance of medicalisation. For pain of more than four weeks' duration, exercise and spinal manipulation are recommended. After six weeks of symptoms, cognitive and behavioural approaches are invoked, recognising the importance of psychosocial factors as determinants of chronicity.

The three recent studies provide a better opportunity to assess the roles of physiotherapy, exercise, and manipulation in the management of spinal pain. The UK back pain and manipulation trial (UK BEAM) was a large randomised controlled trial that recruited 1334 patients with mechanical low back pain from referrals from general practice in the United Kingdom.² The authors found that manipulation followed by exercise improved the patients' mean Roland Morris disability score by a moderate amount at three months and by a smaller amount at one year compared with a primary care package that included training sessions on the active management of back pain. Combined therapy was

better than either manipulation or exercise alone. The difference between these two categories reached significance but was relatively small in absolute terms, and its clinical relevance must remain uncertain. The heterogeneity of patients included in the trial could be one reason for the relatively modest benefits observed. Almost 60% of participants had pain of more than 90 days' duration, and these are likely to represent a different subgroup from those with more acute symptoms.

The findings lead on to the inevitable question as to whether, in today's cash strapped NHS, the cost of this small improvement is justified. This issue was addressed in a companion paper,³ which presented a cost utility analysis assessing the cost effectiveness of adding manipulation, exercise classes, or both to general practice care packages for low back pain. If we are willing to pay £2000 for each quality adjusted life year saved, the standard primary care package provides value for money. If this threshold were raised to £10 000 manipulation alone turns out to be the best strategy. Finally, if manipulation were not available, exercise would have an incremental cost effectiveness ratio below this threshold also, but the combination of the two would become more expensive. We should note that these broad cost effectiveness estimates fall well within those nominally assigned to other interventions in medicine and used by the National Institute for Clinical Excellence (NICE).⁶

At the other end of the spine, epidemiological studies are beginning to show great similarities between the patterns of occurrence and risk factors for neck and low back pain. Thus, a recent longitudinal study of neck and shoulder pain among women nurses at two hospitals in England showed that 34% reported at least one episode of neck or shoulder pain during an average period of 13 months and that the strongest predictor of pain was a previous history.⁷ Although increased risks were observed for physical exposures at work, low mood and stress at baseline seemed just as important. Thus, as is the case with low back pain, cervical pain is being recognised as a multifaceted phenomenon incorporating physical impairment, psychological distress, and social interruption. Particularly when chronic, it is likely that biopsychosocial approaches to management, rather than a concentration on physical factors alone, will turn out to be most successful.

Given this background, Klaber Moffett et al, in this issue of the journal,⁴ report a trial comparing a brief physiotherapy intervention with usual therapy among patients with subacute and chronic neck pain. The

former package used principles of cognitive behaviour therapy to encourage self management and return to normal function, while the usual treatments included ultrasound, transcutaneous electrical neural stimulation, manual therapy, ergonomic advice, and acupuncture. The 268 patients were randomly allocated to each of these treatment programmes. The results indicated that the brief intervention was less effective at 12 months than usual therapy, but outcome varied widely in both groups such that the difference might have fallen into the non-inferiority range—concordant with the original hypothesis being tested.

So what does all this tell us? Perhaps there is a place for more targeted therapy. Most trials in this area are hampered by diversity in the patients studied, not to mention the therapists delivering treatment. Given the large psychosocial component to chronic spinal disability, is it any wonder that few trials show substantial benefits from specific physical interventions? Evidence exists that the response to manipulation may increase from 45% to 95% when certain clinical factors such as the pattern of pain, its duration, and the presence of fear avoidance beliefs are detectable.⁸ Further research into the subgroups of patients who respond best to particular treatments is warranted. However, the results of such studies are unlikely to have an impact on the enormous public health burden posed by spinal pain, unless they are also accompanied by broadly based public health interventions designed to alter beliefs about back pain, reduce its medicalisation, and promote active rehabilitation. Indeed, one of the best population based approaches to address these

objectives showed a decline in number of work related claims, rates of days compensated, and medical payments over the duration of the campaign.⁹ Perhaps this hearts and minds approach at both a societal and individual level will assist our extrication from the current quagmire that is the management of spinal pain.

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Migraine and ischaemic stroke

They are associated, but risks are low and surmountable

Migraine and ischaemic stroke are both common conditions. It is hardly surprising, therefore, that the two can coexist in the same patient—but does a causal relation exist? The meta-analysis by Etmann et al in this issue provides further evidence that it does.¹ Previous work showed no increase in the risk of haemorrhagic stroke in people with migraine.²

The increased relative risks reported by Etmann et al were 1.8 in migraine without aura, 2.3 in migraine with aura, and 8.7 in women with migraine who are taking the oral contraceptive pill. These figures may not be accurate because their meta-analysis has several problems: similar populations were not included; case-control studies are vulnerable to recall bias; control for confounding risk factors such as family history, smoking, diabetes, hypertension, and common treatments may not have been uniform; high risk patients with migrainous symptoms due to other conditions were not excluded; uncertainty existed in some studies about the diagnosis of migraine and even of stroke (transient ischaemic attacks were sometimes included); no distinction is made between users of oral contraceptive pills containing high doses of oestrogen and those containing low doses or only progesterone.

This may be crucial because risks with the latter are lower or even non-existent.³⁻⁵ Most importantly they do not give information on the influence of age.

Age is the most important risk factor for stroke. In young people the absolute risk of stroke is very low, and so the increased relative risks reported here, even in women taking oral contraceptive pills, need not be alarming. What does the increased risk of stroke mean for older people with migraine? Confirmation of another suspected risk factor could perhaps be taken as good news because it offers the hope of prevention. The risk of stroke in older people is due to the influence of several risk factors and may exceed the sum of their individual relative risks. Older people with migraine should therefore perhaps be assessed more carefully.

Migraine is not one condition. Worrying subtypes include migraine with aura, hemiplegic migraine, and migraine recurring in elderly people after years of freedom or occurring for the first time. Some medical conditions associated with an increase in the risk of stroke can also cause migraine—for example, cerebral autosomal dominant arteriopathy with subcortical infarcts and leucoaraiosis (CADASIL) and the antiphospholipid syndrome. Others such as acute dissection of the carotid or vertebral artery, subarachnoid haemorrhage, cranial

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