Acupuncture in mainstream health care

Is cost effective for chronic non-specific low back pain and migraine

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Lower back pain is a common ailment that places a considerable burden on society in terms of reduced quality of life and lost productivity.¹ In this week's *BMJ* an economic evaluation by Ratcliffe and colleagues shows that acupuncture is relatively cost effective as an adjunct to usual care for patients with persistent non-specific lower back pain.² The study is based on a well conducted pragmatic randomised controlled trial, which is also published this week.³ The trial showed a modest but statistically significant reduction in back pain and increase in health related quality of life compared with usual care.

The addition of acupuncture to usual care for low back pain raised health service costs by £140 (€207; \$265) per patient, but this increase was small relative to the health gain. At £4000 per quality adjusted life year (QALY) gained, this is well below the lower NHS funding threshold used by the United Kingdom's National Institute for Health and Clinical Excellence (NICE) of £20 000 per QALY gained,⁴ which implies that acupuncture is more cost effective than many treatments provided by the NHS.⁵ Even at the upper 95% confidence interval of £28 000 per QALY gained, it is still below NICE's upper threshold of £30 000 per QALY gained.

The authors followed the methods of NICE,⁴ and did not include (except in a sensitivity analysis) the indirect cost savings associated with participants in the trial returning to work. This is because inclusion would represent double counting of the health gain already captured in the QALYs. Furthermore, the inclusion of these productivity gains would run counter to the equity stance of the NHS, because if generally applied it would prioritise interventions for young, fit adults over those for elderly people and those unable to work. To my knowledge this is only the second rigorous economic evaluation of acupuncture.⁶⁻⁷ The first, in which I was an investigator, had a similar design but studied patients with migraine.⁸ We found that acupuncture cost £9000 per QALY gained in patients with migraine. Other economic studies of acupuncture have found substantial cost savings compared with usual care, but they have usually been conducted by advocates of acupuncture and have used questionable methods.⁷⁻⁸ For example, studies have claimed cost savings on the basis of hypothetical interventions that would have been deemed necessary by the investigator if acupuncture had not been used. Other studies have used before and after comparisons or non-randomised controls. The two studies based on randomised evidence do not show the

dramatic cost savings that have been postulated by advocates, but neither do they show that the health gain is too trivial to be cost effective.

Sceptics will argue that the results of these studies could be entirely due to a placebo response. Recent reviews of data from clinical trials have questioned the existence of a general placebo response across all health outcomes.⁹ But for pain, randomised controlled trials and psychological experiments provide evidence for a placebo response.⁹⁻¹⁰

It is also plausible that the placebo response would be translated into differences in health related quality of life (as measured by the SF6D instrument in the trial by Thomas and colleagues³). The design of the study (with patients randomised to have new treatment plus usual care versus usual care alone) is suited to evaluation of effectiveness and cost effectiveness, but it is inappropriate for assessing the extent to which the observed outcomes are attributable to the placebo response. For this we should turn to the Cochrane review on acupuncture for patients with chronic low back pain.¹¹

The Cochrane review found evidence from high quality randomised controlled trials that acupuncture reduces pain in the short and intermediate term compared with sham (placebo) acupuncture.¹¹ This implies that treatment has real effects over and above a placebo response. In contrast, a recent randomised controlled trial of acupuncture for tension headache showed that sham acupuncture was almost as effective as acupuncture when compared with no treatment (rates of clinical improvement were 35%, 46%, and 4%, respectively),¹² and the effect could have been mainly or wholly due to a placebo response.

Rigorous economic evaluations of acupuncture are important because acupuncture sometimes has serious side effects,¹³ and if money is spent on acupuncture then that same money will not be available to be spent on other clinically effective treatments for other patients. But commissioners of research should also ensure that the effectiveness of each intervention compared with placebo has been well established, even if placebo controlled trials of complementary medicine are fraught with difficulties. The same issues apply to more orthodox forms of medicine, such as surgery, where placebo controlled trials might be helpful but are rarely conducted.

The new research in this week's *BMJ* means that acupuncture for persistent lower back pain has been clinically researched more thoroughly than many orthodox medical treatments. Healthcare decision

makers should consider acupuncture as an adjunct to usual care for patients with persistent low back pain or migraine: the best evidence shows that the associated health gain represents good value.

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Childhood pneumonia in developing countries

Refinement of clinical algorithms is a priority

Despite major advances in our understanding of the burden and epidemiology of childhood acute respiratory infections, almost two million children still die from pneumonia each year, accounting for 20% of deaths in children aged under 5 years globally.¹⁻² Accurate figures are difficult to obtain, but the estimated incidence of pneumonia is 151 million new cases a year, and, of these, some 11-20 million (7-13%) are severe enough to require hospitalisation.² These composite figures do not reflect the tremendous inequity both between and within countries, with the bulk of pneumonia deaths affecting the poor with limited access to services.³

The crucial first step in tackling childhood pneumonia is being able to diagnose it accurately, a challenge highlighted in this week's *BMJ* by Hazir and colleagues.⁴ They analysed 1848 chest radiographs of children in Pakistan hospital outpatient settings who had had non-severe pneumonia diagnosed clinically according to World Health Organization guidelines. Only 14% of the children had radiological evidence of pneumonia. Other community studies in Pakistan have found chest radiographs to have very low specificity for pneumonia in young children.⁵

It is now almost 15 years since the launch of a global acute respiratory infection programme by WHO, which focused on simplified syndromic diagnosis of childhood pneumonia by health workers and management of selected cases with oral co-trimoxazole.⁶ Subsequent progress has focused on scaling up the management strategies by training health workers and inclusion of the strategies within the integrated management of childhood illnesses programmes.^{w1} There have been several modifications of these diagnostic algorithms since and, with the emergence of antimicrobial resistance among common respiratory pathogens,⁷ an understandable spate of alternative treatment regimens.⁸⁻⁹ Given that many poor families in developing countries are unable to access services in health facilities, it is not surprising

that the bulk of childhood pneumonia deaths occur in community settings where there are relatively few skilled health workers. There is emerging evidence that management of pneumonia in community settings by community health workers may reduce mortality significantly,¹⁰ and several pilot studies have confirmed the feasibility of such approaches.^{w2-w4} Not surprisingly, there is considerable pressure to scale up these interventions in community settings,¹¹ but their success will depend on the availability and application of robust diagnostic algorithms by health workers with only basic training or even lay people.

Radiology and determination of hypoxia by pulse oximetry have been considered the optimal methods for diagnosing pneumonia,^{w5} but they are clearly suitable only for use in institutional settings. This immediately raises concerns as to the robustness of pneumonia diagnosis using clinical criteria. Although the low specificity of clinical algorithms may be unavoidable given the need to detect and diagnose pneumonia rapidly in young children, this can have unexpected consequences once such diagnostic methods are applied on a large scale, especially by community health workers. Others have also highlighted the importance of standardisation and supervision of health workers in their use of diagnostic criteria for pneumonia surveillance and management.^{w4 w6}

There are legitimate concerns that, once treatment regimens are rolled out for pneumonia management by community health workers, existing diagnostic criteria would lead to considerable overtreatment of children with respiratory infections. Given the paucity of effective and inexpensive antimicrobial agents for treating pneumonia, large scale use of existing agents for non-bacterial pneumonia significantly increases the risk of development of antimicrobial resistance. Clinical failure rates as high as 22% have been

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Extra references w1-w7 are on bmj.com

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