4. Power

As regards the power calculation, a change in eight units in PRIT is what can reasonably be expected from any 'treatment' for pain judging from previous clinical trials using this outcome measure. The statistical power was, as recommended, at least 80% in order to detect a reasonable departure from the null hypothesis: this power level is not, in fact, asking healing to be more effective than any known intervention, just to show some effect (as claimed by many of the 12,000 healer-members of healing organisations in the UK) over and above a 'control' arm in a trial. Lastly, The SD of ten units is an acceptable one based on other studies using the MPQ.

5. Specific and non-specific effects

Dr Walach and colleagues seem to suggest that the overall result is a false negative, given the hurdles placed by the chronic condition of the patients and the power of the study. The results speak for themselves. In the event – leaving formal statistics to one side – the actual outcome was that about 25% of the 'active' groups and 25% of the 'placebo groups reported a clinically meaningful 50% reduction in pain. Yet, these are the very patients healers see and charge for their services day after day. In our trial the claimed results did not materialise, and we hope that healers will moderate their claims in light of this evidence.

It is true that the question of whether spiritual healing has a specific effect is still open. However, we submit that – along with the results of our study - the open door is slowly closing. The results of two systematic reviews of the literature (Astin et al., 2000; Abbot, 2000) show the kind of unclear picture that would be expected from an ineffective 'therapy' given the effects of positive publication bias. As regards non-specific effects, the correspondents suggest that 'healing' may be a vehicle for harnessing them. But that is not the point. The point is that many 'healers' claim to heal symptoms, directly or indirectly, by channelling a force from a source to a patient. Rather than falling back on 'non-specific' effects, isn't it time healing and its allies faced up to an uncomfortable fact, namely, that specific or not, healing is not exactly all it is sometimes purported to be.

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Clarifying the definition of neuropathic pain

Our pain terminology may be put to the test as pharmaceutical companies ask drug regulatory agencies to approve drugs "for the treatment of neuropathic pain". Regulatory staff and their advisory panels will ask "what *is* neuropathic pain?". Unless a clear answer can be transmitted in about 30 s, this may pose a barrier to approval and to future industry investment.

Our terminology is still a mess. My evidence for this claim is that many otherwise articulate researchers call complex regional pain syndrome, Type I (CRPS I) "neuropathic pain" (Bruehl et al., 1999; Devers and Galer, 2000; Wasner et al., 2001). Much of this confusion is perpetuated by the most recent IASP definition of neuropathic pain (Merskey and Bogduk, 1994) that neuropathic pain is "pain initiated or caused by a primary lesion or *dysfunction* in the nervous system". Any physician would understand the definition if we limited it to "pain initiated or caused by a primary lesion of the nervous system". Neurologists have spent 150 years teaching and refining practical clinical criteria to infer definite or possible lesions of nerves. Sindrup and Jensen's lucid meta-analysis of drug treatments of neuropathic pain (Sindrup and Jensen, 1999), which they limited to trials satisfying this old-fashioned neurologist's tissue-based definition, shows that most drugs that have been studied have reasonably similar results across patients with various types of peripheral nerve lesions. There have been few controlled trials of chronic drug treatments in CRPS I (Kingery, 1997), although an open-label case series by Galer et al. (1993) suggested that an analgesic response to lidocaine infusion is more likely in patients with definite nerve lesions than those with CRPS I.

The IASP definition is doomed by the vague phrase "dysfunction of the nervous system". I recently attended a 2-day workshop whose purpose was to produce a consensus definition of physiologically-based subsets of neuropathic pain patients for clinical drug trials. Unexpectedly, almost half of the allotted time was consumed by an argument about what we mean by neuropathic pain, let alone its subsets.

At this workshop, several physiologically-oriented clinicians invoked the IASP definition to argue that patients with

widespread allodynia, hyperalgesia or hyperpathia without negative signs of nerve injury — e.g. CRPS I patients — could be described as having neuropathic pain. The tissue-oriented participants countered that if allodynia or hyperalgesia constitutes "nervous system dysfunction", then most patients with postoperative pain, rheumatoid arthritis, soft tissue bruise, or any other inflammatory condition have "neuropathic pain". This would reduce our pain terminology to nonsense. This 'slippery slope' argument is not just conjecture; I have recently heard experienced pain researchers refer to the chronic pain of interstitial cystitis as "neuropathic bladder pain" just because allodynia is readily evoked.

I would have no problem with an anatomically-oriented hypothesis that "CRPS I *may be* neuropathic pain" — that is, as yet undetected lesions of nerves are essential. However, the most important improvement in the discussion of RSD/CRPS I in the past decade has been the acknowledgement that we don't know the origin of the pain. Bruehl et al. (1999) demonstrated that CRPS I is distinct from cases of clear-cut nerve injury by showing that a discriminant analysis showed different clusters of symptoms and signs in the two groups. This important paper was marred only by the authors' summary statement that CRPS I is "statistically distinguishable from *other types of known neuropathic pain*", showing how the IASP definition can muddle the communication of even the clearest of thinkers. Those who are not pain experts will be even more susceptible to confusion.

So let's eliminate the 'dysfunction' from the IASP definition of neuropathic pain.

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Test the classification of pain: reply to Mitchell Max

In a well-written letter Mitchell Max has challenged the existing IASP definition (Merskey and Bogduk, 1964) of neuropathic pain. According to Max the word 'dysfunction' is the starting point of a roller coaster trip, where clinicians are taken on a turbulent journey starting with classical neurological pain conditions via CRPS type I to meaningless 'neuropathic pains' such as interstitial cystitis and musculoskeletal pains.

Max is of course right that none of us will accept interstitial neuritis and soft tissue bruises as definite neuropathic pains and he may also be correct in his fear for an increasing confusion among clinicians if the broader definition used by IASP is kept. The problem is that our current knowledge of neuropathic pain mechanisms now go beyond the classification proposed by Max. For example, well-known features in classical neuropathic pain such as allodynia, lowered threshold and abnormal temporal summation, can be equally important in less clear conditions such as fibromyalgia, CRPS type 1, and certain visceral pains. Neuropathic pains, if considered by mechanisms are therefore not that easy to classify and may cover a series of conditions ranging from definite neuropathic pain at one end via probable, possible to unlikely neuropathic pain at the other end (Vestergaard et al, unpublished observations).

The narrow definition proposed by Max be less helpful for the following reasons:

Neurologists and other physicians have for at least a century been taught to examine and classify patients on basis of topographical lesion and on basis of pathology. Such classification is essential for understanding underlying disease etiology, but in terms of pain this strategy will not tell us much about the mechanisms causing these pains (Woolf and Mannion, 1999) and how to treat them, and treatment is of course crucial in all chronic pains, irrespective of their cause.

Chronic pains are characterised by hyperexcitability giving rise to, or caused itself by, plastic changes in the nervous system. The array of manifestations of such plasticity includes cellular expansion of receptive fields, change of modality to which neurons respond, recruitment of silent neurons or circuits, and a neuronal reorganisation in the dorsal horn and further upstream (Wall, 1999; for review see Woolf and Salter, 2000). These plastic changes are a