Postoperative benefits with electroacupuncture

Simon Hayhoe

Although there is a long history of electrical treatment in medicine, from the ancient use of electric fish for analgesia to Berlioz's early experiments with electrostimulation through needles, formal electroacupuncture was not introduced in China until the 1950s. The first Chinese electrostimulators were certainly unsophisticated compared with modern equipment, but they were also unsafe. Burns were common, as the pulse width had not been corrected to avoid a heating effect at needle sites, and electrolysis through the medium of body tissue fluid caused breakdown of needles over a period of constant flow. Likewise, although acupuncture has been used as an analgesic probably since Stone Age times, acupuncture 'anaesthesia' for operative purposes is also a product of the 1950s, the first use reportedly being for dental extraction. That it can be effective is clear from the many reports and videos from China and the fact that it is used in some Western hospitals and even in veterinary practice. Nonetheless, the success rate seems highly variable, so it is standard to supplement acupuncture with local anaesthetic, analgesics (often opiates) and tranquilisers or sedatives. This is the technique that Dias et al. have used (see page 65).

Unfortunately, since their combination of drugs is effectively a neurolept anaesthetic and the local technique can be sufficient for surgery by itself, it is difficult to assess any further impact that acupuncture might have on pain relief in the perioperative period. Indeed modern anaesthesia, both local and general, is now so safe and effective that acupuncture, which is accepted to have only partial success for most people, is generally inappropriate for anaesthesia. It is thus the later postoperative effects that are of real interest.

There were reports of postoperative benefits from the early days of Western acupuncture research, with the suggestion that there are reduced inflammation and stress responses, reduced infection rate and less need for potent analgesics, all of which are of major importance, allowing more rapid mobilisation, discharge from hospital and return to active work, potentially cutting the costs of surgery dramatically. Chinese journals have continued to explore these benefits, but usually there is only an abstract available in English, making proper assessment impossible. However, a meta-analysis of 15 high-quality randomised, controlled trials published in English showed that acupuncture is indeed an effective adjunct analgesic for postoperative pain. It allows a significant reduction in opiate analgesic use and thus a lower incidence of opioid side effects. This is very encouraging, but there still needs to be more specific investigation of the longer term benefits.

Here Dias et al. find reduced blood glucose shortly after surgery, reduced analgesic use later in the postsurgical week and reduced occurrence of seroma. This is all evidence that acupuncture has damped down stress and inflammatory responses. These effects are statistically significant, but the small numbers in the trial mean that less reliance can be placed on the result. Nevertheless, it should act as a good stimulus to further research concentrating on the postoperative effects.

The other subject this paper raises is the matter of nomenclature. We are very familiar with the term electroacupuncture (EA), although it has been used to mean other things, particularly electro-therapeutic research. More recently the term PENS (percutaneous electrical nerve stimulation), is a more logical and scientifically valid term to use. It was originally used to refer to electrical stimulation at needle sites, and electrolysis through the medium of body tissue fluid caused breakdown of needles over a period of constant flow. This is an artificial one, since there are many more traditionally used acupuncture points than the 365 numbered on meridians. Apart from the ah shi (tender, trigger, jump, MTrP) points, Chinese textbooks describe at least 40 standard extra, so there are few places on the body where needling could not be regarded as acupuncture, indeed the WHO defines acupuncture very widely as ‘the insertion of needles into humans or animals for remedial purposes’. Nonetheless, as with ‘dry needling’, PENS allows acupuncture to be approved by those who could never accept that an alternative treatment might be effective.

In fact PENS, as a point-specific partner to TENS (transcutaneous electrical nerve stimulation), is a more logical and scientifically valid term for the technique than electroacupuncture and might at some time in the future become the accepted standard nomenclature. For the time being, however, the variety of synonyms and acronyms is a distraction, making database searches more complicated, with greater chance of missing relevant articles. The same is true for the non-penetrating ‘acu-pressure’ variants, which include Shiatsu, Amma, Tuina, silver spike point therapy (SSP), transcutaneous acupuncture electrical stimulation (TAES or TEAS) and needle-free acupuncture—all very confusing! I would thus make a plea for standardisation of terms in English language journals.

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