Acupuncture effects under anaesthesia and questions about placebo

Dear Editor,

We found the recent article by Liodden et al to be interesting, especially due to the design and the subsequent permission of the ethics committee to allow this study to be performed in ‘the real world’. However, that discussion is not the aim of this letter. Our concern is that the authors conclude that “acupuncture may not be effective beyond placebo”, which we think is based on incorrect assumptions.

ACUPUNCTURE PRE-, DURING OR POST-ANAESTHESIA

Dundee, who pioneered the use of acupuncture for postoperative nausea and vomiting, found that the timing of the treatment is critical. Acupuncture must be administered before the anaesthetic (around the time of the pre-anaesthetic) rather than just before or after induction of anaesthesia. Reviewers have commented on this as a prerequisite for the effectiveness of the treatment, since it is thought that general anaesthesia can block the effect of acupuncture, as can the use of local anaesthetics. Acupuncture treatment can be effective after the surgery once the anaesthetic has worn off, but not during the period of anaesthesia itself. Liodden et al administered the acupuncture during anaesthesia and therefore the lack of an effect may have been due to timing. While the novel approach attempted to control for placebo effects, this study probably underestimated the effects of acupuncture.

ACUPUNCTURE EFFECT AND PLACEBO

The lack of a measurable difference between the two treatment groups in the study by Liodden et al shows that acupuncture did not have any additional effect over standard care. The possibility that this was due to incorrect timing of acupuncture cannot be ruled out and undermines our ability to interpret fully the results. The question concerning placebo is not easy to address with this particular study design. In research involving placebos it is often prudent to add a group receiving no treatment, which helps address issues around the natural course of the disease. Moreover, the argument that the use of placebo may deceive the parents is more likely to be understood as a Rosenthal effect rather than a placebo effect. In our opinion, the assumptions stated in the paper that there is “a relationship between parental treatment expectancies and treatment outcomes” and that “parental beliefs about group allocation could activate or deactivate treatment expectancies” are not justified. No evidence is presented in support of these assumptions and we doubt their validity. Furthermore, even assuming the validity of the claims, the methods used in the study will have distributed any purported placebo effects equally between the two groups. Without a group receiving no treatment (which is not feasible in a surgical study such as this), it is impossible to identify what proportion of the impact of treatment in either group might be due to placebo effects.

Given that this was a pragmatic trial and there was no untreated control group, it is not possible to discuss placebo effects in this trial; hence we disagree with the conclusions and interpretations of the authors.

ACUPUNCTURE: LENGTH AND TYPE OF STIMULATION OF THE ACUPUNCTURE POINTS

There are also likely to have been issues related to treatment duration and degree of stimulation in the study by Liodden et al. The authors state in their report that “relatively short needle retention times (1, 5, and 15 minutes, respectively) have been shown to be effective in children”, a claim which is supported by three citations (references 22, 28 and 29 in their paper).

In the first cited study, patients who received acupuncture under anaesthesia at two points (compared to one) had better outcomes, implying that greater stimulation improves efficacy. In the second cited study, the treatment evaluated was laser acupuncture, hence the reference to needle retention is incorrect; the acupuncture point was stimulated with a laser for 1 min. In the third cited study, continuous electrical stimulation was applied to the skin for 5 min, which is arguably a much greater level of stimulation than that of a needle left in situ for some minutes without any stimulation, as was done in the study by Liodden et al. In conclusion, we do not believe that the authors have used reliable references regarding the optimum duration of the acupuncture treatment and the appropriate level of stimulation; the treatments they refer to are too heterogeneous. Consequently, it is possible that the duration and intensity of needle stimulation during anaesthesia may have been inadequate, thus further reducing the effectiveness of the treatment.


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