

healthcare systems outside the U.S. National Surgical Quality Improvement Program. The analysis of administrative data to achieve these goals may present a solution, but the accuracy and completeness of such data need evaluation in each healthcare setting where this is an option.

Competing Interests

The authors declare no competing interests.

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Is Perioperative Intravenous Lidocaine for Complex Spine Surgery a More Complex Issue?

To the Editor:

This interesting article adds to the literature confirming the analgesic effects of lidocaine but leaves several questions unanswered.¹ The hypothesis is plausible, but there is insufficient evidence to prove an effect in this population group. It is a small trial comprising only 116 patients, and even with randomization, mismatches in patient characteristics may occur which the authors acknowledge.

One important problem with this trial concerns the chronic use of opioids, with 32.8% in the control group compared with 15.8% in the treatment group. Chronic average opioid use seems higher in the lidocaine group although there were fewer users. There is no clear statement whether the authors controlled for the intraoperative opiate used or whether the preoperative opioid dose was subtracted from the postoperative dose in making the final calculation. There is no subgroup analysis looking at the opioid-naïve group alone or the opioid-tolerant group alone. It would be interesting to know how many patients and in which grouping received the full 8 h of lidocaine infusion allowed in the protocol.

We would suggest that the use of opiate dose as an end-point is inappropriate unless subanalysis is performed on the opioid naïve *versus* the opioid tolerant. It is possible that the difference in opioid use is due to the patients' need for their regular opioid medication, tolerance, or even opioid-induced hyperalgesia; an effect that might be greater in the control group. If as the authors suggest many centers have a

higher incidence of patients on chronic opiates, a larger study should possibly include only patients on opiates and look at total opiate dose required for adequate pain control looking at the change in pre- to postoperative dose requirements.

There are possibly other similar other unmeasured confounders due to the small number of participants, but the study does provide data for sample size selection for a large clinical trial.

Competing Interests

The authors declare no competing interests.

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1. Farag E, Ghobrial M, Sessler DI, Dalton JE, Liu J, Lee JH, Zaky S, Benzel E, Bingaman W, Kurz A: Effect of perioperative intravenous lidocaine administration on pain, opioid consumption, and quality of life after complex spine surgery. *ANESTHESIOLOGY* 2013; 119:932–40

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In Reply:

Our study¹ was appropriately powered for the primary comparison among randomized groups. Even in moderately large randomized trials, there can be important differences in baseline patient characteristics. In our case, for example, there were 19 of 58 patients in the placebo group who took opioids chronically, whereas only 9 of 57 patients in the lidocaine group did. Fry and Davis ask whether this difference might have influenced our results.

In a *post hoc* analysis, we therefore first assessed both the relation between chronic opioid use and postoperative morphine equivalent dose. The ratio (95% CI) of mean postoperative IV morphine equivalent dose comparing chronic opioid users with nonusers was estimated at 1.31 (0.76 to 2.24). We then assessed the differential treatment effect among chronic opioid users and among nonusers. The ratio (95% CI) of mean postoperative IV morphine equivalent dose comparing chronic opioid users randomized to lidocaine with chronic opioid users randomized to placebo was 0.69 (0.28 to 1.67). For nonusers, this ratio was 0.84 (0.47 to 1.51).

In our main analysis, we did not adjust for chronic opioid use. A separate *post hoc* analysis, which adjusts for chronic opioid use, reveals an estimated ratio of means (lidocaine *vs.* placebo) of 0.79 (0.49 to 1.28) (the estimate from the main analysis was 0.75 [0.47, 1.20]).

There is thus no compelling indication that the chance imbalance on chronic opioid use substantively influenced our

conclusion that IV lidocaine is analgesic for complex spine surgery and noninferior on postoperative opioid consumption.

Competing Interests

The authors declare no competing interests.

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