

CORRESPONDENCE

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Epidural Drugs Also Act Systemically

To the Editor:—Udassin *et al.*¹ describe how epidural lidocaine can hasten the recovery of gastrointestinal motility after ischemic injury in rats. Their rats had a highly significant ($P < 0.001$), more rapid resolution of adynamic ileus following bowel ischemia than did control rats given nothing or epidural saline. They suggest that this effect may be due to epidural lidocaine's action in blunting the sympathetic efferent inhibitory pathways or unopposed vagal activity on the gut.

Although this might be true, we would like to suggest another explanation for their results. Epidural lidocaine in the dose given to the rats (approximately 10 mg/kg) can result in significant systemic absorption. Rimbäck *et al.*² showed that intravenous lidocaine significantly decreased the time required for the return of colonic motility in patients following cholecystectomy. Other studies demonstrated that local anesthetics have similar effects if applied topically or intraperitoneally.^{3,4} Suppression of afferent neurons from the intestine, attenuation of sympathoadrenal stress response, and the anti-inflammatory effects of the amide local anesthetics all have been suggested as possible explanations for the improved recovery of intestinal function seen with systemic local anesthetic administration.²

Udassin *et al.*¹ demonstrate the beneficial effects of lidocaine on recovery of bowel function. Whether these effects of lidocaine are greater because the drug was given epidurally rather than systemically awaits further investigation.

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In Reply:—We appreciate Groudine and Wilkins' suggestion that lidocaine may enhance gastrointestinal motility by its direct effect on the smooth muscle of the gastrointestinal tract.

In our study,¹ we did not measure the blood levels of lidocaine in rats after epidural injection. This is also the case in one of the papers² cited by Groudine and Wilkins, the difference being that the lidocaine was administered as a 100-mg bolus followed by 3 mg/kg in a continuous infusion. In the other study cited,³ the investigators injected 10–20 mg/kg lidocaine directly into the superior mesenteric artery of cats and showed, as a result, increased motility of a denervated section of the jejunum.

As suggested by Groudine and Wilkins, the systemic effect of lidocaine in clinical doses on bowel motility still needs to be investigated.

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