Single dose omeprazole on plasma bupivacaine concentrations following epidural administration

To the Editor:

The observation that omeprazole is metabolised by the hepatic cytochrome P-450 enzyme system, mainly by CYP2C but involving several different P-450 isoenzymes, and that omeprazole inhibits P-450 mediated metabolism, raises the possibility of potential interactions between it and other drugs metabolised by this system.¹⁻² While the P-450 system demonstrates remarkable isoenzyme specificity, there is considerable overlap of substrate specificity.³ We investigated the interaction profile of omeprazole with the local anaesthetic bupivacaine, which is metabolised by cytochrome P-450 enzymes and which is often used concurrently with omeprazole in anaesthetic practice.⁴

Twenty adult, matched patients, 10 per group, were randomised to receive no medication or 40 mg omeprazole *po*, two hours before epidural bupivacaine (80 mg). Venous blood samples were taken for bupivacaine assay, before and at 15, 30, 45, 60 and 120 min after bupivacaine administration. The samples were centrifuged and the supernatant plasma stored at -20°C until assayed by gas chromatography mass spectrometry using 2 H₃-bupivacaine as the internal standard. There was no difference between the control and omeprazole group in the area under the plasma concentration against time curve at 120 min (170 ± 24.1 ; $185 \pm 12.3 \text{ mol}\cdot\text{min}^{-1}\cdot\text{L}^{-1}$); maximum plasma bupivacaine concentration (1.97 ± 0.4 ; 1.67 ± 0.2

$\text{mol}\cdot\text{L}^{-1}$) or time of its occurrence (0.25 ± 0.02 ; 0.25 ± 0.0 hours). Bupivacaine concentrations decreased after C_{max} with a similar trend in both groups (Figure).

There is no suggestion that single dose omeprazole administered orally interferes with plasma bupivacaine levels. It is therefore a safe single dose antacid therapy before regional anaesthesia with bupivacaine.

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FIGURE Mean (SEM) plasma bupivacaine concentrations in the control and omeprazole groups. Bupivacaine levels were lower, but not significantly) in the omeprazole group than in the control all time points except at 120 min.