

## CORRESPONDENCE

There was one failure after three trials. All procedures were accomplished with no complications such as arterial puncture or pneumothorax.

The high rate of success (99.2%) of the present technique was comparable to that previously reported by us (99.3%)<sup>2</sup> and suggests that the characteristics of our curved needle are suitable for piercing only the anterior wall of the IJV.

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## Atropine Facilitates Neostigmine Reversal of Vecuronium-induced Neuromuscular Blockade

**To the Editor:**—In their article, Baurain *et al.*<sup>1</sup> demonstrate facilitation of neostigmine reversal of vecuronium-induced neuromuscular blockade by larger doses of concomitantly administered atropine (15–20 µg/kg) when compared with smaller doses of atropine (10 µg/kg) in anesthetized patients. I wish to propose a pharmacokinetic explanation for this observation. Atropine has a more rapid onset of action than neostigmine. Administered simultaneously, I would expect an increase in heart rate and cardiac output to precede cardiovascular effects of the anticholinesterase. Was this change significantly greater in the higher dose atropine group? Increased delivery of the neostigmine to muscle may have influenced recovery of neuromuscular function. The conclusion of the study is based upon a single measurement of 100-Hz tetanic fade, 15 min after the atropine and neostigmine doses were administered. No measurement of tetanic

fade was done after 15 min, so there is no basis on which to compare the recovery time for the tetanic fade between the groups.

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**In Reply:**—Unfortunately, cardiac output was not measured as part of our study.<sup>1</sup> Thus the influence of atropine upon blood flow to muscle must, for the moment, remain hypothetical.

The reasons for limiting tetanic fade stimulations to one measurement performed 15 min after the administration of the atropine and neostigmine mixture were the following: first, high-frequency stim-