CORRESPONDENCE

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Treatment of Hypotension after Hyperbaric Tetracaine Spinal Anesthesia

To the Editor:—I read with interest Dr. Brooker *et al.*'s[1] study investigating the effects of epinephrine and phenylephrine in the resuscitation of patients receiving tetracaine subarachnoid anesthesia. This well-balanced study delineates clearly the effects of these substances on cardiac output, systolic, diastolic, and mean blood pressure, and heart rate in 14 volunteers. The literature is replete with case reports of hypotension and bradycardia during subarachnoid anesthesia, and it is useful to have this detailed knowledge when deciding on resuscitation drugs. Several of these reports describe asystole or severe bradycardia resistant to atropine and ephedrine; many of these cases occurred in previously healthy patients.[2-5]

The paper mentions the landmark closed claims analysis by Caplan *et al.*, in which 14 critical incidents involving bradycardia leading to cardiac arrest during otherwise normal spinal anesthetics resulted in death or severe neurologic injury. Although the Brooker *et al.* state the theoretic risk of myocardial ischemia when giving β_2 agonists, they do not mention the known potentially lethal risk of severe bradycardia that may be exacerbated by administration of phenylephrine. In their study (N = 14), there were no adverse events as a result of this mechanism, but all of the 14 critical incidents in the Caplan study were due to bradydysrhythmias.

Mackey *et al.*[4] discuss the importance of preexisting autonomic dysfunction (*e.g.*, diabetic dysautonomia) or the Bezold-Jarish reflex as potential predeterminants of severe bradydysrhythmias. During subarachnoid anesthesia, these may manifest themselves in patients who otherwise appear healthy. Perhaps agents that improve cardiac output without reducing heart rate would be a better choice in these patients. This information should also be included in the clinician's decisions regarding resuscitation drugs in subarachnoid anesthesia.

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In Reply:—We appreciate Sibell's interest in our study "Treatment of hypotension after hyperbaric tetracaine spinal anesthesia: A randomized, double-blind, cross-over comparison of phenylephrine and epinephrine." Although there were no adverse outcomes in this study, we described two patients with significant adverse events during treatment with phenylephrine. These two patients developed severe bradycardia during treatment of postspinal hypotension with phenylephrine, requiring rescue therapy with epinephrine when atropine failed to reverse the bradycardia. We agree with Sibell that agents such as epinephrine with potent inotropic and chronotropic activity may be more suitable therapy for management of hypotension after spinal block. It is our belief that the results of our study and the closed-claims study done by Caplan *et al.* support this conclusion.

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