

CORRESPONDENCE

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Treatment of Cocaine-induced Cardiovascular Toxicity

To the Editor:—The review by Fleming *et al.* suggests the following concerning the toxicity of cocaine.¹ The contribution of the sympathetic nervous system to the cardiovascular toxicity of cocaine is well documented. Not mentioned in the review are the experimental observations that cocaine can release catecholamines, especially epinephrine, from body stores.²⁻⁴ Stimulation by cocaine of sympathoadrenal outflow is associated with that of renin-angiotensin system.⁵ These properties may account for the reported experimental observations that selected calcium channel antagonists may be more effective antidotes (than α - and/or β -adrenergic blockers) in the treatment of the cardiovascular toxicity of cocaine.⁶ These studies suggest that their therapeutic validation in human acute cocaine intoxication might be warranted.

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An Approach to Spinal or Epidural Catheters That Are Difficult to Remove

To the Editor:—We read with interest the letter from DeVera and Ries¹ describing yet another sheared spinal catheter. We would like to offer several additional observations when encountering increased resistance during removal of a spinal catheter. First, in an *in vitro* study of tensile strength and elongation of spinal microcatheters, it was observed that a 10-mm segment of these catheters will stretch anywhere from 21.2 ± 0.7 to 54.2 ± 0.5 mm depending on the manufacturer, before breaking.² Second, although not previously quantified, the average force, as measured by a digital scale in ounces of pull, encountered during epidural catheter removal is more than two times greater with the patient sitting (0.38 kg) than with the patient lying in the lateral decubitus (0.17 kg) (unpublished data). We postulate that the increased tension results from axial loading of the vertebral interspaces when the patient is in the sitting position. This explanation is consistent with the apparently straightforward superficial surgical extraction described by DeVera and Ries¹ once the patient was supine on a Wilson laminectomy frame. Because the patient was not sitting, the interspace was not loaded (*i.e.*, the catheter was not pinched).

We think that these observations are especially important for work with spinal microcatheters, which have much lower tensile strengths (0.46–0.52 kg) than do their epidural counterparts (1.7 kg), with which we all are more familiar.^{2,3} Thus, when confronted with a catheter extraction problem, we suggest that the anesthesiologist 1) place the patient in the lateral decubitus; 2) not apply additional tension if the catheter is seen to stretch (*e.g.*, as indicated by an increase in the distance between marks already existing or placed on the catheter); and 3) consider measuring the tension applied during extraction, such as by trying the proximal catheter to an electronic scale (*e.g.*, Normark, Minneapolis, MN). This would then give an objective indication of the actual force

(tension), as measured by ounces of pull, applied to the catheter. Such scales are available wherever fishing tackle is sold.

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