

## CORRESPONDENCE

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*In Reply:*—We appreciate the interest of de Jong *et al.* in the difficulties of calibration using oscillometry. Oscillometric blood pressure measurement provides, in descending order of accuracy, estimates of mean, systolic, and diastolic pressures. To determine a gain factor and offset to apply to the piezoresistive measurement using oscillometry, there are three degrees of freedom (mean, systolic, and diastolic) to determine two variables (gain and offset). With this additional degree of freedom, infinite calibration rules can be created. One rule is to consider the difference between systolic and diastolic pressure for calculating the gain. This method may be problematic because it combines the errors in the two measures most subject to inaccuracies. A linear calibration using only the mean and systolic measures might be proposed as possibly less subject to noise because the diastolic measurement may add more incremental noise than information. A quadratic calibration formula might be proposed because it would use the extra degree of freedom. Given these possibilities, we chose to simply correct for the offset in mean pressure alone, and in our study, we considered only mean pressure because

it is the least error-prone. Oscillometric calibration is the major source of disagreement between measurements of blood pressure determined using arterial tonometry and intraarterial measurement. Further investigation may permit the improvement of calibration using oscillometry.

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## Precurved Transtracheal Catheters

*To the Editor:*—At the conclusion of their paper concerning kinking of transtracheal catheters,<sup>1</sup> Sdrales and Benumof state that “. . . continuously precurved [transtracheal jet ventilation] catheters may be commercially available soon . . . .” In fact, a precurved transtracheal catheter designed by Ravussin and Freeman has been manufactured by VBM Medizintechnik, Germany, since 1985<sup>2</sup> and is available in the United States from International Medical Development, Park City, Utah.

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## References

1. Sdrales L, Benumof JL: Prevention of kinking of a percutaneous transtracheal intravenous catheter. *ANESTHESIOLOGY* 82:288–291, 1995
2. Ravussin P, Freeman J: A new transtracheal catheter for ventilation and resuscitation. *Can Anaesth Soc J* 32:60–64, 1985

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## Neurotoxicity of Contrast Agents: I

*To the Editor:*—Karl *et al.*<sup>1</sup> report a case of focal seizures after intraoperative visualization of a cervical syringoperitoneal shunt with diatrizoate meglumine (Renografin or Hypaque), a water-soluble ionic contrast agent. When my colleagues and I published a similar

near catastrophe in 1970,<sup>2</sup> there were few clinical reports in the literature. Twenty-four years later, it is remarkable that this avoidable complication still occurs.

An important detail missing from their case report is the identity