CORRESPONDENCE


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In Reply—We appreciate the interest in our work and the complimentary comments. Our findings indicated that isoflurane consistently caused dilation of the preconstricted coronary arterioles that we obtained from porcine hearts.1 These arterioles were in the moderate size range (II), 172 ± 51 mm [SD]), and, consequently, they would contribute significantly to the resistance to blood flow in the intact coronary circulation.2 Thus, dilation at the level of these vessels could account in large part for the well-documented ability of isoflurane to reduce coronary vascular resistance and uncouple myocardial oxygen supply (i.e., coronary blood flow) from myocardial oxygen demand in vivo.3-7 Park et al.8-10 found that isoflurane either caused constriction or had no effect on the coronary arterioles that they obtained from rabbits, rats, and swine, depending on whether the vessels were in a predilated state or whether vasomotor tone was augmented pharmacologically. During neither condition did isoflurane cause dilation of the coronary resistance vessels.

The findings of Park et al.8-10 are undoubtedly in direct conflict with those from our current in vitro study and with the overwhelming in vivo evidence. In fact, they were so at variance with other studies that they prompted a 1994 editorial in Anesthesiology.11 In our recent article,1 we acknowledged the difference between our findings and those of Park et al. and proposed that one possible explanation was that they administered isoflurane much more gradually and over a much longer time period than we did, which allowed their coronary arterioles to adapt to the relaxing effects of the anesthetic.1,12 It is unlikely that vessel size also contributed to the different findings from the two groups because the range in the internal diameter of the coronary resistance vessels studied by Park et al.8-10 (60-174 mm) overlapped considerably with that in our study (68-237 mm). Which other methodologic factors, if any, contributed to the different results from the two groups remains to be determined.

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