Our use of nitrous oxide while making the control measurements was essential since general anesthesia was required during the experiment. The statement by Wollman and his colleagues that "the effects of nitrous oxide on the cerebral circulation are not known" will cause some despondency to those who for 15 years have used the technique of Kety and Schmidt to measure cerebral blood flow.

We apologize for our errors of omission. The duration of halothane administration in our study was between 20 and 120 minutes. The pharyngeal temperature of the animals was maintained between 36°C and 38°C by controlling the environmental temperature.

We entirely agree that the most likely explanation of the differences between Wollman's results and our own is that the techniques used measure quite different parameters. We would, however, submit that blood flow through localized areas of cerebral cortex may not be without significance.

On the question of possible species differences, we enclose two plots of the clearance of xenon 133 from the brain of an anesthetized patient (1) prior to and (2) during halothane administration (this patient was studied by Dr. A. M. Harper, Mr. W. B. Jennett, Dr. J. L. Steven and Dr. J. Barker whom we wish to thank for permission to include this illustration). As this technique measures mainly the clearance of xenon 133 from the parietal cerebral cortex, these results give further support to the hypothesis that halothane, while probably increasing total cerebral blood flow, produces a reduction in flow in certain areas of the cortex.

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References


To the Editor.—I am glad to have the comments of Drs. McDowall and Harper on a problem which interests both their group of investigators and ours. While certain minor points in our paper and in their letter may bear further discussion among us, I am most pleased that in general we agree on the reasons for our differences. I am also gratified that we have available more than one method for attacking the problems of anesthetic effects on the brain.

The Kety and Schmidt nitrous oxide technique has certain drawbacks which we mentioned in an article in the Journal of Applied Physiology 15: 561, 1964. The inhalation of a low concentration of nitrous oxide (15 per cent) is probably not the most important of these. We are at present preparing two papers which bear on the effects of 70 per cent nitrous oxide on the cerebral circulation.

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