and in our study hypothermia clearly delayed increased intracranial pressure and thereby prolonged a higher cerebral perfusion pressure ($P=0.01$).

We propose that even in a well-controlled experimental study, and despite prolonged postinsult control of extracerebral variables, with an adequately severe cerebral focal ischemic insult small animal-to-animal variations will lead to the inevitable death of a certain percentage of the animals. Present treatment modalities are inadequate in preventing this mortality from diffuse brain swelling and herniation. Prolonged moderate hypothermia (31°C) but not mild hypothermia (35°C) postpones intracranial hypertension while the hypothermia lasts, but it does not prevent the delayed intracranial hypertension that leads to herniation and brain death during reswelling in some of the animals. The modalities that are effective decrease the cerebral ischemic damage of surviving animals, as expressed by the brain infarct size and cerebral perfusion.

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localized (ie, focal) dilation of an artery having at least a 50% increase in diameter compared with the expected normal diameter of the artery in question. A recent article has further clarified the size of the normal infrarenal aorta based on size and age. The average size of the infrarenal aorta for an average-size man aged 65 to 75 years is 1.87 to 1.95 cm. The normal aortic size is approximately 2 mm smaller for women.

Based on this we reported our data, using a diameter of 3.0 cm for the definition of an aneurysm. We identified aneurysms in 8.4% of patients presenting to us for carotid duplex evaluation, and this increased to 11% in patients with high-grade stenosis of the internal carotid artery. If the authors had used this size for an aneurysm, the incidence of associated aneurysms would have been 13.5%, which is similar to our own results.

Our study was performed to determine the value of screening a cohort of patients with carotid disease for the presence of an aortic aneurysm. A screening examination (ie, mammography) is performed to identify an occult, unsuspected abnormality. If one is trying to determine the efficacy of a screening exam for aortic aneurysms, patients with palpable or suspected aneurysms based on a physical examination should be excluded from the analysis. We eliminated patients in our study who had palpable aneurysms on physical examination. If we had included these patients, our incidence of associated aneurysms would have been higher and similar to that of Karanjia et al. They report that eleven of their patients had palpable masses, which if pulsatile would surely have been expected to be an aneurysm.

We believe this study confirms an association between carotid artery disease and abdominal aortic aneurysms. We advocate the use of ultrasound to screen asymptomatic patients for the presence of an aneurysm in those with elevated systolic velocities in the internal carotid artery.

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Response

We thank Drs Bays and Carty for their comments regarding our recent article in respect to their own investigation. Independent studies reporting generally similar data are always rather gratifying phenomena. As pointed out by these investigators, the difference between the two studies relates primarily to the size criteria used for abdominal aneurysm. This is an area of some controversy.

In our study, we defined the size of an aneurysm as 2.5 cm, with clear focal dilatation present as judged by the radiographer. The correspondents imply that we were vague on the latter point, but we would refer them again to our "Subjects and Methods" section. Although many centers consider 3.0 cm the lower limit for the definition of aneurysm, other investigators argue for aneurysmal criteria even smaller than ours. Indeed, there is evidence that even the smallest aneurysms increase in size, possibly at a rate faster than that of larger aneurysms. We would also point out that some published criteria for aneurysm size restrict this term only for focal dilatation greater than twice the expected size in that individual, a definition that would exclude the 3.0-to 3.8-cm aneurysms of the correspondents' study. We believe, and we suspect the correspondents would agree, that the presence of even small aortic dilatations should prompt some clinical concern and should be followed at the least with serial ultrasounds.

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Association of abdominal aortic aneurysm and carotid artery stenosis.

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The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://stroke.ahajournals.org/content/25/7/1527.1.citation