Letter to the Editor

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Long-Term Relative Survival in Elderly Patients After Carotid Endarterectomy

To the Editor:

The study by Norman et al was a retrospective study of patients with symptomatic carotid stenoses undergoing carotid endarterectomy over a 10 year period from 1988–1998. Data were collected from multiple centers with multiple operating surgeons using the Western Australia Data Linkage system.

The total population was 1796 patients, which was divided into patients under 80 years (n=1645) and those aged 80 years and over (n=151). Mean follow-up was 4.7 years.

Cumulative survival at 5 years was 80% for those under 80 years and 65% in the older group. Relative survival at 5 years was 95% in the under 80 years group and 118% in the older group.

The authors concluded that morbidity and mortality were not statistically greater in an older age group. Higher stroke rates have been reported in octogenarians and this population may benefit more from surgical intervention.

We feel that this is a clinically important issue as prior major carotid surgery trials have not considered the over 80 years age group, which is a population with higher stroke rates and a greater risk of recurrences. The authors have presented clear objectives and have a large patient population in total. Analysis was performed with appropriate statistical methods and they state clear conclusions. However, on division of the population into the 2 groups, there are adequate numbers in the under 80 years group (n=1645) but not in the over 80 years group (n=151). This small number (151 patients) might not have the power to detect true differences in mortality and may produce a Type 2 error.

The 2 study groups may not be comparable as data were collected from multiple centers and multiple operating surgeons, possibly with different selection criteria. As stated in the paper, the older age group was carefully selected and this may explain the higher relative survival in this group. This may reflect a set of surgeons with enthusiasm for performing carotid endarterectomy in patients over 80 years who would accordingly select older patients more stringently than the younger group. This is probable given that this is a multicenter study with multiple operating surgeons where not all surgeons would elect to perform carotid endarterectomy in the over 80 years age group.

We feel that the best method of evaluating efficacy of carotid surgery in the over 80 years group would be with a randomized controlled trial. Such a trial would only include octogenarians who are selected by preset criteria and then randomized to receive medical treatment or surgical treatment with carotid endarterectomy. The population can then be followed for an adequate period to assess mortality and morbidity of carotid endarterectomy in octogenarians.

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Response:

Thank you for the opportunity to respond to the letter from Drs HS Patel and C Kyriakides concerning our Research Report published in July, 2003.

The first point they raise is the possibility of a Type 2 error occurred when comparing mortality between octogenarians and patients under 80 years of age. Although we included a comparison of 30-day case fatality in the results, this was not the focus of the study and we did not try to make any conclusions about this comparison. The focus, discussion, and conclusion of the paper concerned the comparison of the long-term survival of octogenarians undergoing carotid endarterectomy with that of the whole population of octogenarians (ie, relative survival analysis).

The next point about the 2 groups not being comparable because data came from multiple centers does not make sense. Both groups were operated on at all centers but this should make them more, not less, comparable. There may have been variation in case selection but this is the advantage of a community-wide study. We emphasize again, the important result was not the comparison of the 2 groups, it was the relative survival analysis which does not compare octogenarians with those under 80 years of age.

That a randomized trial is the best way to evaluate the efficacy of carotid endarterectomy in octogenarians is self-evident. To the best of our knowledge, no such trial is planned and for the time being population-based studies are the next best source of data.

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