Response to Letter by Powers Regarding Article, “Failure of Cerebral Hemodynamic Selection in General or of Specific Positron Emission Tomography Methodology? Carotid Occlusion Surgery Study (COSS)”

Response:

In response to the Letter to the Editor by Powers, “Failure of Cerebral Hemodynamic Selection in General or of Specific Positron Emission Tomography Methodology? Carotid Occlusion Surgery Study (COSS),” we note the following.

Although we appreciate the great effort Dr Powers expended to design and carry out the COSS trial, it is imperative that we look critically at the study and consider all possibilities for the futility end of the study to define a difference between the surgical and the medical groups.

The ratio of 1.12 we reported was based on COSS instructions to determine eligibility for enrollment. The cutoff was apparently changed to 1.13 in final analysis. We also note that our publication was based on Dr Powers’ presentation 6 months earlier at the International Stroke Conference.

Dr Powers was concerned that the patients in our study were not relevant to the COSS population. The 14 patients studied included patients who were eligible for COSS. Denied by the COSS executive committee to include our quantitative studies as part of COSS, we were allowed to do our quantitative studies after the COSS studies were completed. This is how the studies we report were done. Because these studies were not done as part of COSS, they were outside the jurisdiction of COSS requirements for publication.

We appreciate the restatement of how the COSS trial was derived from an initially quantitative oxygen extraction fraction (OEF) study and converted to a qualitative study based on post hoc analysis of 36 patients. The difficulty in recruiting patients if an arterial line was needed justified the qualitative study. We also appreciate that the post hoc derivation of a 40% stroke rate was based on post hoc analyses of a small study (36 patients from the St Louis study) is because they failed to identify the high-risk stroke group as suggested by the inability of the COSS study to define a benefit due to surgery was the same reason the initial bypass trial failed, that is, failure to identify and select a high-risk, hemodynamically compromised population for the study.

The conclusion of the JAMA publication2 of the results of this aborted trial due to futility is that “bypass surgery did not make a significant difference in outcome.” Although this conclusion may be factually correct, the suggestion that bypass surgery does not still have the potential to show a clinical benefit must be challenged until a methodologically correct study is performed.

We still conclude that the COSS trial most likely failed not due to the inability of bypass surgery to prevent stroke, but more likely due to the inability of COSS to correctly identify a hemodynamically compromised high-risk subgroup.

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Andrew Carlson, MD
Howard Yonas, MD
Edwin M. Nemoto, PhD
Department of Neurosurgery
University of New Mexico
Albuquerque, NM

References


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Andrew Carlson, Howard Yonas and Edwin M. Nemoto

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