

Criteria for stroke centers

Eleven specific hospital characteristics have been recommended as criteria for stroke centers. In a cohort of 16,853 patients with ischemic stroke treated at 34 academic medical centers, Douglas et al. found four of these recommended characteristics to be associated with increased use of IV tissue plasminogen activator (tPA) but none was associated with reduced in-hospital mortality.

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Do the Brain Attack Coalition's criteria for stroke centers improve care for ischemic stroke?

Commentary by Larry B. Goldstein, MD

A variety of strategies to organize health care delivery are being developed and implemented to facilitate the provision of therapies of proven value. This approach was the impetus behind the Brain Attack Coalition (BAC) recommendations for the establishment of primary stroke centers.¹ Although data are available suggesting that at least some of the 11 BAC stroke center characteristics may favorably affect the process and outcome of care, the incremental benefits of adopting each of the suggested elements remains uncertain.

Based on clinical trial and subsequent observational data, increased appropriate use of intravenous tPA would be expected to translate into a higher proportion of stroke patients with little or no subsequent disability. Consistent with previous studies, the report by Douglas et al. found that 4 of the 11 BAC-recommended primary stroke center elements were associated with increased tPA use with trends favoring increased utilization for three additional elements. For each of these elements present at a hospital, the odds of giving tPA increased by 40%. Caution must be exercised in interpreting these data as hospitals were included in the analysis only if they had used an administrative code for tPA administration at least once during the study period; tPA use was never

coded at some hospitals in which it was given. There could also be systematic differences within institutions affecting the administrative coding of tPA use, and only data from academic institutions were included. The frequency of appropriate (i.e., according to guideline recommendations) tPA use was not assessed. Finally, the frequency of tPA administration represents a process and not an outcome measure.

None of the 11 BAC-recommended stroke center elements was associated with a reduction of in-hospital mortality or an increased frequency of discharge to home. Further, there were no relationships between a hospital's number of stroke center elements and in-hospital mortality, discharge to home, length of hospitalization, or costs. Because the study was based on administrative data review, direct measures of prestroke functional status and stroke severity, the most important predictor of outcome, were lacking. Similarly, discharge destination, which may be affected by a variety of factors unrelated to acute care, was used as a surrogate for poststroke functional measures. Long-term outcomes were not assessed. Therefore, although concerning, the lack of demonstrated impact on outcome as measured in this study does not mean that such an effect does not exist.

Although benefits are expected, there remain few data directly showing that stroke centers per se improve patient outcomes. Because overwhelming expert opinion believes this to be true, the stroke center concept is now being embraced nationwide. At least two states have developed policies supporting the designation of stroke centers and preferential emergency medical transport of patients to centers fulfilling stroke center criteria. Localities in other jurisdictions may be doing so as well. However, a statewide assessment of stroke treatment facilities found little change in the numbers of hospitals with primary stroke center capabilities over the last 5 years.² Economic factors may drive hospitals to adopt the stroke center model, but what is sorely needed is systematically collected outcomes data examining the public health benefits of primary stroke centers.

References

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