Stroke
JOURNAL OF THE AMERICAN HEART ASSOCIATION
American Stroke Association
A Division of American Heart Association

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Stroke published online Jun 10, 2010;
DOI: 10.1161/STROKEAHA.110.585364
Stroke is published by the American Heart Association. 7272 Greenville Avenue, Dallas, TX 72514
 Print ISSN: 0039-2499. Online
ISSN: 1524-4628

Editorial

The 'Standard' for Poststroke Aphasia Recovery

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See related article, pages 1485–1488.

The past 2 decades may be remembered as the decades of metrics in medicine. All aspects of our work have been measured and charted by relative value units, H-indices, case mix indices, mean lengths of stay, mean patient satisfaction scores, and so on. Some metrics are important, some less so. However, 1 important measure is the degree to which a patient with stroke will be able to improve in the next 90 days. Decisions need to be made about whether to apply for disability, move to assisted living, or whether to wait for improvement to occur. We as stroke neurologists think we know the answers, but we all give different answers based on very little data; we often say it depends on the size of the stroke, the patient's age and education, the severity and type of the deficit, the quality and duration of therapy, and so on. However, seemingly within a wide range of these variables, Lazar and colleagues[1] have found that that there is a single answer that does not depend on any of these variables; by 90 days, patients improve by approximately 70% of the maximum potential recovery (the maximum potential language score minus their initial score) as long as they receive at least some language therapy if they have significant aphasia after stroke. This study provides 2 very important metrics: (1) a standard against which aphasiologists can measure all new therapies in the subacute phase of stroke (up to 90 days) to determine if they are more effective than the "standard of care" (ie, have added value); and (2) a standard against which providers can measure alternatives to typical therapies. I provide examples of each.

First, numerous investigators have proposed that typical speech therapy is provided in "homeopathic doses" and that intensive therapy would be more effective than the typical 30 minutes twice a week therapy often provided. There is some evidence in favor of this conclusion.[2–8] Others have proposed that medications such as cholinesterase inhibitors, dextroamphetamine, caffeine,[9–14] or transcranial magnetic stimulation[15] or direct cortical stimulation[16] might augment speech and language therapy. One elegant way to demonstrate the added value of these interventions would be to graph the improvement of the people in the augmented therapy along the graph that Lazar and colleagues have provided in Figure 1 in their paper. If the augmented therapy is better, the patients in the new therapy group should fall clearly above the 95% CIs, reaching significantly >70% of their maximum potential. In the same way, inspection of Figure 1 shows that the 1 patient who falls outside of the 95% CIs in the original study (in this case below the expected improvement) was the 1 patient who had significant aphasia but received no therapy. This patient provides evidence that at least some therapy is essential to meet the expected level of recovery (perhaps to "trigger" the recovery as Lazar and colleagues speculate).

Other speech–language pathologists have proposed unique service delivery models to meet unmet needs such as patients in remote areas. These include telemedicine therapy programs, computer treatment programs, group treatment, treatment by a trained family member, and so on. Again, patients who receive treatment through these unique treatment programs can simply be compared against the standard provided by Lazar and colleagues to show that the innovative therapy is noninferior. If the patient's recovery at 90 days is within the expected range centered around 70% of their maximum potential, then it can be considered within the standard of care. If, like the 1 case who did not receive therapy, the outcome falls below the 95% CIs of the expected range, the treatment approach would be considered inferior to the standard of care.

Some caveats are important. First, severely aphasic patients were excluded from this study on the basis that they could not give consent. The same reasoning was given for excluding children from research at one time. If we are going to learn how to help people with severe aphasia, we must include them. It is possible to obtain informed consent from their closest relatives and obtain assent from the individuals themselves in future studies to determine if these data apply also to people with severe aphasia.

A second caveat is that we do not really know from this study if the quality or duration or frequency of therapy would have made a difference, because we know nothing about the therapy that was provided. It is quite likely that it was relatively infrequent for short periods after 1 week or so of acute inpatient rehabilitation for those who also had need for physical and occupational therapy. However, many patients with significant aphasia have no physical and occupational therapy needs, so they never have inpatient therapy or indeed any intensive therapy. As noted earlier, there is independent evidence from other studies that intensive therapy may be more effective and might have allowed the patients in this study to reach a higher outcome than 70% of their maximum potential.

The composite outcome measure they chose was reasonable, because it was based on the subtest scores of the Western Aphasia Battery with the highest interrater reliability on the Western Aphasia Battery. However, it does not capture

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(*Stroke*. 2010;41:1316-1317.)

***Stroke* is available at http://stroke.ahajournals.org**
DOI: 10.1161/STROKEAHA.110.585364

all aspects of speech and language that might be both targets of therapy and important aspects of recovery to patients. For example, it does not capture speech articulation or "fluency," which is notoriously hard to measure, because fluency is a multidimensional parameter that reflects grammatical aspects of sentence production, pauses, articulatory struggle and accuracy, prosody, and so on. Even experienced speech–language pathologists using the Western Aphasia Battery scoring have poor interrater reliability in scoring fluency.[17] The composite score also does not capture reading, writing, or grammaticality of sentence production.

In summary, Lazar and colleagues have provided an important metric for predicting aphasia recovery and evaluating interventions for aphasia after stroke. Time will tell how much better we can do than "70% of the maximum recovery by 90 days" with novel augmentative treatments. Importantly, the lifetime after 90 days poststroke provides fertile grounds for further improvement in communication. Individuals with aphasia should be guided toward communication enhancement programs, book clubs, social organizations, or language research (see www.aphasia.org) after traditional aphasia therapy ends.

Disclosures

None.

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KEY WORDS: aphasia ■ prognosis