Letters to the Editor

Stroke welcomes Letters to the Editor and will publish them, if suitable, as space permits. They should not exceed 1,000 words (excluding references) and may be subject to editing or abridgment. Please submit letters in duplicate, typed double-spaced. Include a fax number for the corresponding author.

Predicting Length of Stay in the Rehabilitation of Stroke Patients

To the Editor:

The anticipation of a patient's length of stay has obvious ramifications for the selection of an appropriate level of rehabilitation service and for discharge planning. The findings of Galski and associates,1 therefore, have great importance. The intent of this letter is to compare the results of their research in a comprehensive rehabilitation setting with the results of a similar retrospective analysis in our exempt, hospital-based acute rehabilitation unit.

The correlations that Galski and coworkers reported between length of stay and admission Functional Independence Measure (FIM) scores were −.65 for occupational therapy items, −.59 for physical therapy items, and −.63 for psychology items. Using multiple regression they found that only admission occupational therapy and psychology FIM scores made significant individual contributions to the prediction of length of stay. Our Table shows the results of the analysis of the data from 42 patients with stroke admitted consecutively to our unit. The lengths of stay ranged from 5 to 76 (mean, 21.6) days. The Spearman correlations of the self-care, mobility, and locomotion category FIM scores, and of the total FIM score with length of stay, are similar in magnitude to the correlations reported by Galski and colleagues.1 Of particular note in our analysis is the correlation between the bed-to-chair transfer FIM score and length of stay. The correlation (.811) is higher than that of any other FIM score (individual, categorical, or total) with length of stay. Of all the other individual FIM scores, only one, social interaction (cognition), was found by multiple regression to make a significant additional contribution to the prediction of length of stay. Together the bed-to-chair transfer and social interaction FIM scores predicted 69.7% of the variance in length of stay. Both our analysis and that of Galski and associates leave a great deal of variance in length of stay unexplained. Nevertheless, the explanation of greater than 50% of the variance in length of stay is of particular note in our analysis of stroke survivors. Our Table shows the results of the analysis of the data from 42 patients with stroke admitted consecutively to our unit. The length of stay ranged from 5 to 76 (mean, 21.6) days. The Spearman correlations of the self-care, mobility, and locomotion category FIM scores, and of the total FIM score with length of stay, are similar in magnitude to the correlations reported by Galski and colleagues.1 Of particular note in our analysis is the correlation between the bed-to-chair FIM score and length of stay. The correlation (.811) is higher than that of any other FIM score (individual, categorical, or total) with length of stay. Of all the other individual FIM scores, only one, social interaction (cognition), was found by multiple regression to make a significant additional contribution to the prediction of length of stay. Together the bed-to-chair transfer and social interaction FIM scores predicted 69.7% of the variance in length of stay.

Both our analysis and that of Galski and associates leave a great deal of variance in length of stay unexplained. Nevertheless, the explanation of greater than 50% of the variance in length of stay is quite remarkable given the myriad of environmental, social, and financial factors that might conceivably contribute to length of stay among patients with stroke.

Richard W. Bohannon, EdD, PT, NCS
Judith Cooper, MA, MPA, PT
School of Allied Health
University of Connecticut
Storrs, Conn

Spearman Correlations Between Length of Stay and FIM Scores for 42 Patients With Stroke

<table>
<thead>
<tr>
<th>FIM Category</th>
<th>Correlation</th>
<th>Range of Category Item Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-care</td>
<td>−.644</td>
<td>−.242 to −.700</td>
</tr>
<tr>
<td>Sphincter control</td>
<td>−.476</td>
<td>−.455 to −.506</td>
</tr>
<tr>
<td>Mobility</td>
<td>−.706</td>
<td>−.579 to −.811</td>
</tr>
<tr>
<td>Locomotion</td>
<td>−.623</td>
<td>−.597 to −.807</td>
</tr>
<tr>
<td>Communication</td>
<td>−.375</td>
<td>−.317 to −.365</td>
</tr>
<tr>
<td>Social cognition</td>
<td>−.452</td>
<td>−.391 to −.476</td>
</tr>
<tr>
<td>Total</td>
<td>−.722</td>
<td>−.242 to −.811</td>
</tr>
</tbody>
</table>

FIM indicates Functional Independence Measure.

Reference


Response

My colleagues and I appreciate the efforts of Bohannon and Cooper in comparing their findings on the factors determining length of stay for stroke survivors to the results of our study. As noted in their remarks, the magnitude of correlations and, more importantly, the explained amount of variance for length of stay determinants were similar in both studies. We seemed particularly to share an understanding about the importance of the determining variance linked to cognitive impairments.

We also share the view that despite what is already known about factors that influence length of stay in rehabilitation, there is still much to be explained in predicting length of stay, recommendations for aftercare, and functional outcomes. For example, economic factors, which have seemingly changed lengths of stay from periods of months to only weeks, must be considered determinants of length of stay and recommendations for aftercare. Furthermore, the availability, motivation, competence, and emotional ability of families must be included in this determination. And given the primary importance of higher-order cognition in the rehabilitation of stroke survivors shown in our study, it seems crucial to evaluate the effect of early, comprehensive cognitive remediation on length of stay, outcome, and aftercare.

Continuation of multivariate studies is needed to more fully understand the factors that determine the type of rehabilitation most appropriate for a stroke survivor, how long the stroke survivor needs rehabilitation, and how the stroke survivor can be expected to function once formal rehabilitation has been completed.

Thomas Galski, PhD
Richard Zorowitz, MD
Kessler Institute for Rehabilitation
and Department of Physical Medicine and Rehabilitation
University of Medicine and Dentistry of New Jersey
New Jersey Medical School
Newark, NJ

Left Atrial Spontaneous Echo Contrast and Embolism

To the Editor:

The recent study by Chimowitz et al2 confirms our earlier findings3 that left atrial spontaneous echo contrast (SEC) is associated with previous embolism in patients with atrial fibrillation or mitral valve disease. The contributions of their current study1 include detailed analysis of stroke risk factors and the results of brain and vascular imaging. The authors characterize both studies1,2 as retrospective. Although we appreciate the citation, our study2 was specifically described as prospective, with the study protocol, data collection, and analysis all performed prospectively. Our group has also recently shown that left atrial SEC is an independent predictor of future embolic events in patients with nonvalvular atrial fibrillation.3 We therefore agree with Chimowitz et al that transesophageal echocardiography may enable stratification of cardioembolic risk in these patients.

Richard W. Bohannon, EdD, PT, NCS
Judith Cooper, MA, MPA, PT
School of Allied Health
University of Connecticut
Storrs, Conn

Spearman Correlations Between Length of Stay and FIM Scores for 42 Patients With Stroke

<table>
<thead>
<tr>
<th>FIM Category</th>
<th>Correlation</th>
<th>Range of Category Item Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-care</td>
<td>−.644</td>
<td>−.242 to −.700</td>
</tr>
<tr>
<td>Sphincter control</td>
<td>−.476</td>
<td>−.455 to −.506</td>
</tr>
<tr>
<td>Mobility</td>
<td>−.706</td>
<td>−.579 to −.811</td>
</tr>
<tr>
<td>Locomotion</td>
<td>−.623</td>
<td>−.597 to −.807</td>
</tr>
<tr>
<td>Communication</td>
<td>−.375</td>
<td>−.317 to −.365</td>
</tr>
<tr>
<td>Social cognition</td>
<td>−.452</td>
<td>−.391 to −.476</td>
</tr>
<tr>
<td>Total</td>
<td>−.722</td>
<td>−.242 to −.811</td>
</tr>
</tbody>
</table>
Predicting length of stay in the rehabilitation of stroke patients.
R W Bohannon and J Cooper

Stroke. 1994;25:1295
doi: 10.1161/01.STR.25.6.1295.a
Stroke is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 1994 American Heart Association, Inc. All rights reserved.
Print ISSN: 0039-2499. Online ISSN: 1524-4628

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/25/6/1295.1.citation

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Stroke can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Stroke is online at:
http://stroke.ahajournals.org//subscriptions/