Social and Family Integration of Hemiplegic Elderly Patients 1 Year After Stroke

Gianna Santus, MD, Alberto Ranzenigo, MD, Roberto Caregnato, MD, and Maria Rosa Inzoli, MD

We interviewed 120 elderly hemiplegic patients 1 year after their acute stroke to assess cognitive impairment using the Mini-Mental State Examination, functional autonomy using the Barthel Index, mood disorders using the Hamilton Rating Depression Scale, and social integration using the Social Functioning Exam. Of the 76 patients admitted to this study, eight (12.1% of those testable) had significant cognitive impairment, 41 (53.9%) were functionally self-sufficient, 27 (35.5%) showed depressive symptoms, and 44 (57.9%) had problems in social and family integration. We suggest that a complete rehabilitation program aimed at producing a good quality of life for elderly hemiplegic patients should take into account all these aspects of human existence. (Stroke 1990;21:1019–1022)

Although the goals of a rehabilitation program for hemiplegic patients include the recoveries of lost function, walking ability, and self-sufficiency, these cannot be the only measures of therapeutic success. Today more attention is rightly paid to the psychosocial aspects of rehabilitation.1–5

Because it affects approximately 50% of hemiplegic patients and may be severe and prolonged,6–12 post-stroke depression constitutes a controversial and important problem. Even if it does not seem to affect gains in independence made during hospitalization,13,14 depression poses a risk to the patient’s reacquired functional autonomy and social integration.15

The family is a natural source of support for an elderly hemiplegic patient and may influence his functional improvement16–19 by providing companionship and the opportunity for a normal life.20,21 Rehabilitation programs for elderly hemiplegic patients must be directed not only at recovering functional impairment, when possible, but also at educating the family and society.22,23 An effective program must stress a full life, including physical and psychological balance and social and family integration, for the patient. We studied the level of social and family integration reached 1 year after a stroke by hemiplegics who had followed a specific course of physiotherapy.

Subjects and Methods

In 1986, 123 hemiplegic inpatients (61 men and 62 women) of the Department of Geriatric Medicine and Rehabilitation of the St. Orsola Hospital followed a course of physiotherapy. Three patients (2.4%) (one man and two women) died during hospitalization; the other 120 patients were recalled to the outpatient department 1 year after their stroke.

Of the 120 patients, six (5%) refused to participate, 19 (15.8%) could not be traced because they had changed their address, and another 19 (15.8%) had died. Therefore, our study is based on 76 patients (36 men and 40 women). For each patient, we collected demographic details and information about health conditions.

To assess cognitive function we administered the Mini-Mental State Examination (MMSE) of Folstein et al24 to each patient; a score of ≤23 indicated significant cognitive impairment. Functional physical impairment we measured using the Barthel Index25; self-sufficiency was indicated by a score of ≥75. Special attention was paid to detecting mood disorders, particularly depression, which was diagnosed based on Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition (DSM III)26 symptom criteria; we used the Hamilton Rating Depression Scale27 (HRDS) to assess the severity. Each patient was assessed using the Social Functioning Exam of Robinson et al.,28–30 a semistructured clinical interview consisting of 28 items; the score ranges from 0 (satisfactory functioning) to 1 (severe difficulties).

Results are reported as mean±standard deviation. Statistical analyses include analysis of variance, Stu-
TABLE 1. Demographic Characteristics of 76 Elderly Hemiplegic Patients

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean±SD yr)</td>
<td>68.4±9.4</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary school</td>
<td>65</td>
<td>85.5</td>
</tr>
<tr>
<td>Middle school</td>
<td>2</td>
<td>2.6</td>
</tr>
<tr>
<td>High school</td>
<td>3</td>
<td>3.9</td>
</tr>
<tr>
<td>University</td>
<td>6</td>
<td>7.9</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>46</td>
<td>60.5</td>
</tr>
<tr>
<td>Unmarried</td>
<td>9</td>
<td>11.8</td>
</tr>
<tr>
<td>Widowed</td>
<td>21</td>
<td>27.6</td>
</tr>
<tr>
<td>Living situation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alone</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>With spouse</td>
<td>21</td>
<td>27.6</td>
</tr>
<tr>
<td>With spouse + children</td>
<td>24</td>
<td>31.6</td>
</tr>
<tr>
<td>With others</td>
<td>8</td>
<td>10.5</td>
</tr>
<tr>
<td>In institution</td>
<td>5</td>
<td>6.6</td>
</tr>
<tr>
<td>Socioeconomic class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>22</td>
<td>28.9</td>
</tr>
<tr>
<td>Middle</td>
<td>50</td>
<td>65.8</td>
</tr>
<tr>
<td>High</td>
<td>4</td>
<td>5.3</td>
</tr>
</tbody>
</table>

Results

Table 1 shows demographic characteristics of the 76 patients. Health conditions 1 year after the stroke were good in 41 patients (53.9%), moderately compromised in 23 (30.3%), and seriously compromised in the remaining 12 (15.8%).

Of the 76 patients, 47 (61.8%) had a lesion in the right and 29 (38.2%) a lesion in the left hemisphere. Intracerebral hemorrhage was present in 15 patients (19.7%) and intracerebral infarction in the other 61 (80.3%). One year after the stroke 56 patients (73.7%) had no urinary incontinence, eight (10.5%) had occasional incontinence, and the remaining 12 (15.8%) were incontinent. Only patients with left hemisphere lesions had aphasia, which was global in eight (10.5%) and expressive in three (3.9%); aphasia was not present in the other 65 patients (85.5%) even though two of these had been aphasic when originally admitted to our hospital.

One year after the stroke, 10 of the 11 aphasic patients were unable to answer questions for the MMSE; for the other 66 patients the score was 26.3±4.8 (data not shown). Significant cognitive impairment was found in eight patients (12.1% of 66). MMSE score correlated significantly with age (r=−0.3905, p=0.001), with the Barthel Index score (r=−0.5268, p<0.001), with the HRDS score (r=−0.2851, p=0.010), and with the score on the Social Functioning Exam (r=−0.4981, p<0.001).

One year after the stroke, the 76 patients had a Barthel Index score of 66.2±29.6 (Figure 1). Forty-nine patients (59.9%) were functionally self-sufficient by Barthel Index criteria. Barthel Index score was significantly correlated with age (r=−0.3713, p=0.001) and score on the Social Functioning Exam (r=−0.5088, p<0.001) but not with other demographic variables nor with characteristics of the stroke.

Depression was present in 27 patients (35.5%), who had a mean±SD HRDS score of 16.7±4.5 compared with 6.3±4.5 for the 49 patients not suffering from depression (data not shown). A significant correlation was found between depression and urinary incontinence (χ2=8.4, p=0.0149). The HRDS score was significantly correlated with the MMSE (r=−0.28, p<0.01) and Barthel Index scores (r=−0.4585, p<0.001) as well as with the score on the Social Functioning Exam (r=0.4659, p<0.001). No correlation was found between depression and demographic variables.

Finally, on the Social Functioning Exam our 76 patients obtained a mean±SD score of 0.24±0.22 (Figure 2). The score was significantly correlated with age (r=0.2568, p=0.019). High correlation coefficients were found between the score on the Social Functioning Exam and the MMSE, Barthel Index, and HRDS scores (see above). We divided the patients arbitrarily into two groups, those socially integrated (score on the Social Functioning Exam of ≤0.150), of whom there were 32 (42.1%), and those nonintegrated (score of >0.150), of whom there were 44 (57.9%). No differences were found between the groups in terms of sex distribution, marital status, education, aphasia, or incontinence. Social integra-

FIGURE 1. Barthel Index score for elderly hemiplegic patients 1 year after stroke.
tion was affected by low socioeconomic class (12.5% of the integrated and 40.9% of the nonintegrated patients, $\chi^2=5.9, p<0.05$), by living alone or in an institution (3.1% of the integrated and 18.2% of the nonintegrated patients, $\chi^2=2.8, p<0.1$), and by poor health (3.1% of the integrated and 25% of the nonintegrated patients, $\chi^2=5.1, p<0.05$).

Multiple regression analysis showed a good correlation between score on the Social Functioning Exam and the MMSE, Barthel Index, and HRDS scores ($Y=0.57-0.01X_2-0.001X_3-0.008X_4$, where $Y$=score on the Social Functioning Exam, $X_2$=MMSE score, $X_3$=Barthel Index score, and $X_4$=HRDS score. The multiple regression coefficient was 0.15, $p<0.05$.

Discussion
Of the 76 patients in this study, 41 (53.9%) were functionally self-sufficient while the remaining 35 (46.1%) needed the constant assistance of another person, particularly because of limited use of the plegic arm. Functioning self-sufficiency was significantly correlated with age in these patients, as confirmed in some studies but not in others. Characteristics of the stroke, location of the lesion, marital status, and sex were not correlated with functional recovery. We could not confirm reports that women have a better chance of functional recovery than men.

More than a third of our patients had symptoms of depression. Depression was significantly correlated with cognitive impairment, the level of functional autonomy attained, and social and family integration. This contrasts with our previous findings in hemiplegic patients <1 month after a stroke. In that study, depression was significantly correlated only with the side of the intracerebral lesion, patients with right hemiplegia being more depressed.

Our results confirm findings by Robinson et al., who affirmed that many factors influence the interval from a stroke to the appearance of depression. Thus, during the weeks immediately after a stroke the intracerebral lesion location seems to be the most important factor in determining poststroke depression, but 6–12 months after a stroke other factors such as quality of social integration and severity of functional and cognitive impairment seem more important in determining mood disorders.

Only five of our patients (6.6%) were living in institutions 1 year after their stroke, which reflects the great support provided by families for their elderly handicapped relatives and the good level of functional independence achieved by these patients after a complete rehabilitation program. Admission to an institution seems to be the last resort for families that can no longer take care of their elderly relatives because of either severe disability or financial or logistic problems.

Despite the goodwill of their families, however, 57.9% of our patients had problems in social integration. As in the studies of Robinson and Price and others, the importance for social and family integration of factors such as general health condition, social and financial situation, cognitive impairment, and mood disorders was evident.

Based on the close correlations between the variables, we conclude that good results with elderly hemiplegic patients can be obtained only through a multidisciplinary approach involving attention to mental, physical, social, and family conditions. Physical function must be recovered through an appropriate rehabilitation program; health conditions must be improved by adequate treatment; and depression must be treated, pharmacologically if necessary. Cognitive stimulation through the development of cultural and social interests is important for these patients, as is the informed support of their families. A global approach to these patients involves physicians, nurses, families, and society as a whole.

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**KEY WORDS** • hemiplegia • rehabilitation • stroke outcome
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