New-Onset Fecal Incontinence After Stroke: Risk Factor or Consequence of Poor Outcomes After Rehabilitation?

To the Editor:

We have read with interest the study written by Harari et al. regarding the evolution of patients suffering from new-onset fecal incontinence after stroke. These authors observe the long-term fluctuating nature of such condition, the negative impact on mortality and institutionalization, as well as its narrow relationship with the functional disability. However, we do not know if the fecal incontinence is an independent factor implying poor prognosis in the long term, or if this relationship still exits once the other confounding factors are considered as the functional disability. Furthermore, according to the rehabilitation outcomes of the patients that had suffered from ictus, there is less known about the evolution and the impact of fecal incontinence, and about the factors related to recovery the fecal continence in rehabilitation units.2,3

Due to this situation, we would like to show the results taken from a multidisciplinary geriatric rehabilitation unit of a National Health Service Hospital in Spain.

We gathered data from all patients consecutively admitted to the unit to rehabilitation after stroke between October 1, 2000, and December 31, 2001. The patients with fecal incontinence before stroke were excluded. They were contacted by telephone after 6 months. At admission, data were collected on previous and admission functional states (using the Barthel Index), admission mental states (using the Pfeiffer’s Short Portable Mental Status Questionnaire [SPMSQ]), severity of stroke (using the Orpington prognostic scale), and comorbidity (using the Charlson Index). Then, the functional status and institutionalization were collected at discharge. The mortality, institutionalization, and functional status were gathered at 6 months. Fecal incontinence was evaluated based on the Barthel Index bowel subscore. We divided the population into 3 groups: continent patients at admission, patients who were incontinent at admission and continent at discharge, and patients who had fecal incontinence at admission and at discharge.

Of the 186 admitted patients having stroke in this period of time, 5 were excluded because of previous fecal incontinence and 15 because they had not completed the rehabilitation program (8 patients who were brought into the Acute Unit, 3 who died, and 4 others for several different reasons). The average number of days after onset on admission was 21.81 (±27.83). The characteristics of the remaining 166 patients classified by fecal incontinence at both admission and discharge are shown in the Table. The prevalence of fecal incontinence was 56% at admission, 21.1% at discharge, and 22.1% 6 months later. Patients with fecal incontinence at admission time who did not recover continence had greater functional damage at admission, at discharge, and at 6 months, and a greater institutionalization ratio at discharge and death or institutionalization at 6 months. A univariate logistic regression analysis shows that the risk of death or the institutionalization at 6 months was higher in patients who had fecal incontinence at admission and who were continent at discharge (OR=1.57; 95% CI 0.71 to 3.45) and it was statistically significant for patients with fecal incontinence at both admission and discharge (OR=3.10; 95% CI 1.30 to 7.38). When we adjusted the risk including the functional situation at discharge in the analysis, stratified into the light functional damage (Discharge Barthel Index [DBI] >59), moderate (DBI 40 to 59) and severe (DBI <40), the group of patients with fecal incontinence at admission and at discharge was not associated to risk of death or institutionalization at 6 months (OR adjusted=1.33; 95% CI 0.30 to 4.11). On the contrary, the functional status at discharge was still the main risk factor (DBI 40 to 59; OR=2.17; 95% CI 0.92 to 5.17 and DBI 40; OR=3.71; 95% CI 1.29 to 10.70). Furthermore, we have carried out a multivariate logistic regression analysis of previous and admission factors (previous and admission Barthel Index; age lower or older than 80 years; SPMSQ score 5;

### Comparison of Groups Classified by Fecal Continence at Admission and at Discharge: Variables at Admission and Clinical Outcomes at Discharge and 6 Months

<table>
<thead>
<tr>
<th>Variable</th>
<th>Fecal Continence at Admission</th>
<th>Fecal Continence at Discharge</th>
<th>Fecal Incontinence at Discharge</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>74</td>
<td>60</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Mean age, y</td>
<td>78.77 (7.75)</td>
<td>79.32 (7.09)</td>
<td>82.81 (7.26)</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Female</td>
<td>58.1%</td>
<td>65%</td>
<td>56.3%</td>
<td>Ns</td>
</tr>
<tr>
<td>Previous Barthel Index</td>
<td>94.85 (9.28)</td>
<td>93.77 (10.20)</td>
<td>86.88 (14.75)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Admission Barthel Index</td>
<td>38.78 (13.35)</td>
<td>15 (11.68)</td>
<td>9.03 (7.52)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Discharge Barthel Index</td>
<td>67.31 (16.74)</td>
<td>58.05 (16.56)</td>
<td>27 (14.75)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Comorbidity Charlson Index</td>
<td>2.20 (1.27)</td>
<td>2.37 (1.13)</td>
<td>3.22 (1.74)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>SPMSQ score</td>
<td>2.21 (2.30)</td>
<td>3.38 (2.76)</td>
<td>4.38 (3.03)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Orpington score &gt;5</td>
<td>8.3%</td>
<td>28.3%</td>
<td>39.3%</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Length of stay, d</td>
<td>28.70 (15.39)</td>
<td>33 (13.55)</td>
<td>27.81 (12.0)</td>
<td>Ns</td>
</tr>
<tr>
<td>Institutionalization at discharge</td>
<td>13.5%</td>
<td>20%</td>
<td>31.3%</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Outcomes at 6 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Death or institutionalization</td>
<td>20.3%</td>
<td>28.3%</td>
<td>46.9%</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Barthel index</td>
<td>70.81 (23.73)</td>
<td>58.07 (27.24)</td>
<td>24.07 (20.73)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Fecal continence</td>
<td>93.9%</td>
<td>85.7%</td>
<td>22.2%</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

Values are mean (SD) or as otherwise indicated.

SPMSQ: Short Portable Mental Status Questionnaire of Pfeiffer.

*For comparisons of means, the Kruskal-Wallis analysis of variance was used. For ratio comparisons, the Fisher exact test was used.

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Orpington score ≥5 and Comorbidity Charlson Index) associated to recovery fecal continence at discharge in the 92 patients who had fecal incontinence at admission. The failure of recovery fecal continence at discharge was independently associated with functional disability before stroke (PBI <90: OR=4.55; 95% CI 1.31 to 15.85) and comorbidity Charlson Index at admission (OR=1.70; 95% CI 1.13 to 2.57).

To conclude, the fecal incontinence established after rehabilitation is associated to poor long-term prognosis of patients with stroke admitted to the geriatric rehabilitation unit. These results agreed with previous studies. However, this association is directly related to the functional disability after stroke. Finally, the new-onset fecal incontinence after stroke is more a consequence of poor functional recovery after stroke than a risk factor independently from poor outcomes after stroke rehabilitation.

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