Changes in Functional Outcome Over the First Year After Stroke
An Observational Study From the Swedish Stroke Register

Teresa Ullberg, MD; Elisabet Zia, PhD; Jesper Petersson, PhD; Bo Norrving, PhD

Background and Purpose—Large longitudinal studies on stroke outcome are scarce. The aim of this study was to analyze predictors and changes in functional outcome during the first year poststroke.

Methods—Data on patients who were independent in activities of daily living (ADL) and hospitalized for acute stroke in 2008 to 2010 were obtained from the Swedish Stroke Register. Case fatality was assessed by linkage to the Swedish Population Register. ADL was defined by independence or dependence in dressing, toileting, and indoor mobility and assessed at 3 and 12 months. Predictors of ADL dependency were assessed through multivariate analysis.

Results—In total, 64,746 patients were included. Case fatality at 3 months was 13.1% (men 11.6% versus women 14.8%; P<0.0001) and at 12 months 18.2% (men 16.4% versus women 20.3%; P<0.0001). In the 35,064 followed-up survivors, ADL dependency rates at 3 and 12 months were 16.2% (men 15.9% versus women 19.2%; P<0.0001) and 28.3% (men 22.7% versus women 34.9%, P<0.0001), respectively. Factors predicting deterioration to ADL dependency between 3 and 12 months were female sex (relative risk [RR]=1.56; 95% confidence interval [CI], 1.50–1.60), diabetes mellitus (RR=1.50; 95% CI, 1.05–1.60), comatose at admittance (RR=2.34; 95% CI, 1.79–3.05), previous stroke (RR=1.52; 95% CI, 1.43–1.61), hemorrhagic or unspecified stroke (RR=1.14; 95% CI, 1.05–1.25), and atrial fibrillation (RR=1.11; 95% CI, 1.04–1.17).

Conclusions—Transition from ADL independence to dependence was observed in a high proportion of patients between 3 and 12 months, challenging the common belief that functioning after stroke is stable beyond 3 months. Deterioration occurred more commonly in women, among whom 1/6 converted to dependency. (Stroke. 2015;46:389-394. DOI: 10.1161/STROKEAHA.114.006538.)

Key Words: case fatality • cohort • disability • outcome • stroke
Patients >18 years, hospitalized between January 1, 2008, and December 31, 2010, with any one of the diagnoses (ICD-10) cerebral infarction (I63), intracerebral hemorrhage (I61), or unspecified cerebrovascular event (I64) were included. Only patients who were ADL-independent prestroke were included.

Clinical Parameters
Data on vascular risk factors, functional ability, and living conditions were registered during the hospital stay, as well as secondary prevention, medical care, and planned rehabilitation at discharge.14 Validations of the Riksstroke data have shown over 90% consistency for most of the information from medical records and data entered into the Riksstroke database.15 Consciousness level at admittance was registered using the Reaction Level Scale RLS-85,18 with categories of fully awake, somnolent, and comatose. Data on living conditions and functional ability were collected using a questionnaire at 3 and 12 months (see online-only Data Supplement). At 3 months, some patients were offered a nurse appointment to help them fill out the questionnaire by interview (depending on local resources). The 12-month follow-up consisted of a postal questionnaire.

Outcome
The main outcome was dependency in ADL at 3 and 12 months, respectively. Questions 3 (How is your mobility now? Independent/independent indoors/need help), 4 (Do you need help from someone to visit the toilet? Yes/no), and 5 (Do you need help getting dressed and undressed? Yes/no) were used in both the 3- and 12-month follow-up questionnaires (online-only Data Supplement).14,19 ADL-independent was defined as independent in dressing, toileting, and indoor mobility (being able to get around independently indoors). Dependent was defined as needing help with dressing, toileting or indoor mobility. Mortality status at 3 and 12 months was assessed by data linkage to The Swedish Population Registry. Analyses on case fatality were performed on the whole cohort.

The local ethics approval committee approved the project in 2012 (2012/453).

Patients Lost to Follow-Up
Patients lost to follow-up consisted of those who did not return the questionnaire or did not have valid social security numbers, valid addresses or those under protected identity. The 12-month follow-up was only sent once, meaning that if a patient had a recurring stroke the same year, only one 12-month questionnaire was sent.

Statistical Methods
Statistical analyses were performed in SPSS 21.0. Baseline data were analyzed using student’s t test for parametric normally distributed variables and χ² test for categorical variables. We dichotomized the variable functional outcome into ADL-dependent and ADL-independent. Poisson regression was used for multivariate analyses of relative risks (RRs) of ADL dependency.20 Huber/White/Sandwich estimation was used to estimate covariance in the model.

Results
Baseline Characteristics
The number of stroke events recorded from 2008 to 2010 was 75048. A total of 8703 (11.6%) were ADL-dependent at baseline and excluded from the study. An inclusion/exclusion flowchart is presented in Figure 1. Within the first 90 days, 8483 died and an additional 3296 died between 3 and 12 months. At 3 months, 56263 survivors were found in The Swedish Population Register and were contacted for follow-up, and 49684 subjects completed it. The number of 12-month survivors who received the 12-month survey was 46299. A total of 35064 were followed up at both 3 and 12 months. The response rate at 3 months was 85.9% and at 12 months was 80.7%.

Baseline data including stroke characteristics and vascular risk factors in men and women are presented in Table 1. Among the 35064 patients, there were 18943 (54%) men and 16121 (46%) women. Missing data for each variable was under 1%, except for smoking (6.6%).

Case Fatality
In the total study population including 64746 subjects fulfilling the basic inclusion criteria, case fatality was 8483 (13.1%) at 3 months (11.6% in men versus 14.8% in women; P<0.0001) and 11779 (18.2%) at 12 months (16.4% in men versus 20.2% in women; P<0.0001).
### Table 1. Baseline Characteristics in 35,064 Patients Who Completed the 3- and 12-Month Follow-Up

<table>
<thead>
<tr>
<th>Variable</th>
<th>No. of Observations (%)</th>
<th>ValueMen</th>
<th>Women</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age mean (SD)</td>
<td>71.62 (11.17)</td>
<td>75.29 (11.72)</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
<tr>
<td>One-person household</td>
<td>5658 (30)</td>
<td>9045 (56.2)</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
<tr>
<td>Institutional living</td>
<td>209 (1.1)</td>
<td>352 (2.2)</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
<tr>
<td>Risk factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>10567 (56.2)</td>
<td>9611 (60.1)</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>3835 (20.3)</td>
<td>2561 (16.0)</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
<tr>
<td>Current smoker</td>
<td>2895 (16.4)</td>
<td>2214 (14.7)</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>4075 (21.7)</td>
<td>3781 (23.6)</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
<tr>
<td>Previous stroke</td>
<td>3606 (19.1)</td>
<td>2725 (17)</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
<tr>
<td>Previous TIA</td>
<td>1482 (7.8)</td>
<td>1311 (8.1)</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
</tbody>
</table>

**Diagnosis**

| Ischemic stroke           | 16781 (88.6)            | 14445 (89.6) | 0.004 |
| ICH                       | 1804 (9.5)              | 1369 (8.5)   |       |
| Unspecified stroke        | 358 (1.9)               | 307 (1.9)    |       |

**Care**

| Stroke unit care          | 15491 (81.8)            | 13058 (81)   | <0.0001 |
| Thrombolysis              | 1205 (6.4)              | 817 (5.1)    | <0.0001 |
| Days treated (median)     | 6                      | 6            |        |

**Consciousness level**

| Fully awake               | 17668 (93.8)            | 14781 (92.2) | <0.0001 |
| Somnolent                 | 1001 (5.3)              | 1084 (6.8)   |       |
| Comatose                  | 162 (0.9)               | 170 (1.1)    |       |

ICH indicates intracerebral hemorrhage; and TIA, transient ischemic attack.

### Functional Outcome at 3 and 12 Months and Modes of Responding to Survey

At 3 months, 2767 (14.6%) men and 2896 (18%) women (P < 0.0001; in total 16.2%) were ADL-dependent, whereas at 12 months, 4290 (22.6%) men and 5620 (34.9%) women (P < 0.0001; in total 28.3%) stated dependency. Data on ADL status was missing in <2% of patients.

At 3 months, 17,356 (49.5%) completed the follow-up independently and 8721 (24.9%) completed it with help. A total of 5831 (16.7%) completed the form by nurse interview, either over telephone or in the clinical setting. In the remaining cases (8.1%), an assisting person (care giver, next of kin, other) completed follow-up without participation from the patient.

At 12 months, no nurse follow-up was offered. Patients completed follow-up independently in 21,847 (64.1%) cases, and in 8784 (25.1%) cases, patients completed the form with help. An assisting person completed the remaining 10.1%.

Data on who completed the questionnaire was missing in <3% of cases.

### Predictors of ADL Dependency at 12 Months

Data from a multivariate analysis is presented in Table 2. The RR of ADL dependency at 12 months was higher in women compared with men (RR = 1.31; 95% confidence interval [CI], 1.26–1.36). Other factors predictive of an unfavorable outcome were current smoking habit, atrial fibrillation, diabetes mellitus, decreased consciousness level at admittance, previous stroke, and stroke other than ischemic.

### Changes in Functional Outcome Between 3 and 12 Months

Of the 28,683 patients who were ADL-independent at 3 months, 4544 (16.3%) deteriorated to ADL dependency at 12 months. ADL status in men and women, under and over 75 years, is presented in Figure 2. Deterioration occurred in all groups, but was most pronounced in women >75 years.

A comparison of those who deteriorated between 3 and 12 months to those who were stably independent between 3 and 12 months is shown in Table 3. Patients who were ADL-dependent at 3 months were not included in the comparison. Mean age was higher in those who deteriorated (79.01 compared with 71.13), the majority were women (61.4% compared with 41.8%), and a larger proportion was living in a 1-person household (54.8% versus 38.2%). The deteriorated group showed a higher prevalence of vascular risk factors (except for smoking), and especially atrial fibrillation (28.6% compared with 19.6% in the stable group).

In patients who were functionally stable between 3 and 12 months, 18,893 (80.2%) were living in their own home without assistance at 3 months and 20,525 (85%) at 12 months. In the deteriorated group, 2196 (48.3%) were living in their own home without assistance at 3 months and 1802 (41.9%) at 12 months. The proportion living in a nursery home was 312 (1.3%) and 404 (1.7%) at 3 and 12 months, respectively, in the stable group, although rising from 373 (8.2%) to 726 (16.9%) in the deteriorated group.

In the stable group, 18,893 (80.2%) completed the form independently at 12 months, whereas in the deteriorated group, only 1713 (39.1%) could fill out the form themselves.

### Factors Predicting Deterioration Between 3 and 12 Months

Table 4 shows factors predictive of deterioration from ADL independency to dependency between 3 and 12 months in patients who were ADL-independent at 3 months. Female sex predicted deterioration with a RR of 1.60 (95% confidence interval 1.54–1.66). Other factors predictive of deterioration included current smoking habit, atrial fibrillation, diabetes mellitus, hypertension, increased number of vascular risk factors, and atrial fibrillation.
interval, 1.50–1.70). Other factors predicting deterioration were current smoking habit, diabetes mellitus, decreased consciousness level, previous stroke, and hemorrhagic stroke.

**Table 3. Comparison Between Patients Who Were Stable Versus Deteriorated to ADL Dependency Between 3 and 12 Months**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Stable (24 139, n (%))</th>
<th>Deteriorated (4544, n (%))</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age mean (SD)</td>
<td>71.13 (11.449)</td>
<td>79.01 (9.726)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Female sex</td>
<td>10079 (41.8)</td>
<td>2792 (61.4)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Living alone</td>
<td>9223 (38.2)</td>
<td>2490 (54.8)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Institutionalized</td>
<td>164 (0.7)</td>
<td>134 (2.9)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Vascular risk factors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>3979 (16.5)</td>
<td>1041 (22.9)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>4691 (19.6)</td>
<td>1298 (28.6)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Current smoker</td>
<td>3812 (16.8)</td>
<td>582 (12.8)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Previous stroke</td>
<td>3619 (15.1)</td>
<td>1175 (25.9)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Previous TIA</td>
<td>1824 (7.6)</td>
<td>410 (9)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Hypertension</td>
<td>13 327 (55.6)</td>
<td>2924 (64.3)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Diagnosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ischemic stroke</td>
<td>21 709 (89.9)</td>
<td>4088 (90)</td>
<td></td>
</tr>
<tr>
<td>ICH</td>
<td>1958 (8.1)</td>
<td>362 (8)</td>
<td></td>
</tr>
<tr>
<td>Unspecified stroke</td>
<td>472 (2)</td>
<td>94 (2.1)</td>
<td></td>
</tr>
<tr>
<td>Consciousness level</td>
<td></td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Fully awake</td>
<td>23 125 (96.3)</td>
<td>4216 (92.8)</td>
<td></td>
</tr>
<tr>
<td>Somnolent</td>
<td>798 (3.3)</td>
<td>260 (5.7)</td>
<td></td>
</tr>
<tr>
<td>Comatose</td>
<td>97 (0.4)</td>
<td>43 (0.9)</td>
<td></td>
</tr>
<tr>
<td>Medication at discharge</td>
<td></td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Warfarin</td>
<td>3665 (15.3)</td>
<td>583 (12.8)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Antiplatelets</td>
<td>18242 (75.9)</td>
<td>3469 (76.7)</td>
<td>ns</td>
</tr>
<tr>
<td>Statins</td>
<td>16657 (69.3)</td>
<td>2476 (54.8)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

ADL indicates activities of daily living; ICH, intracerebral hemorrhage; and TIA, transient ischemic attack.

**Lost to Follow-Up**

Reasons for lack of follow-up are described under Methods. Baseline characteristics were compared for patients lost to follow-up versus patients who completed follow-up at 3 and 12 months, respectively (Tables I and II in the online-only Data Supplement).

At 3 months, 6579 (11.8%) of survivors did not return the 3-month follow-up questionnaire for reasons not further specified. In unadjusted data, there were higher proportions of patients with previous stroke (30% versus 22.1%) and patients living alone (51.8% versus 45.3%) than in the group not followed up. The proportion of patients with decreased consciousness level was also higher in the group not followed up (3.3% versus 1.7%).

**Table 4. Factors Predictive of Deterioration From Independence to Dependency Between 3 and 12 Months, in Patients Who Were ADL-Independent at 3 Months**

<table>
<thead>
<tr>
<th>Variable</th>
<th>RR</th>
<th>Lower</th>
<th>Upper</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female sex</td>
<td>1.60</td>
<td>1.50</td>
<td>1.70</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Living alone</td>
<td>1.04</td>
<td>0.98</td>
<td>1.11</td>
<td>ns</td>
</tr>
<tr>
<td>Current smoking habit</td>
<td>1.43</td>
<td>1.31</td>
<td>1.55</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>1.11</td>
<td>1.04</td>
<td>1.17</td>
<td>0.001</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>1.50</td>
<td>1.41</td>
<td>1.60</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Comatose</td>
<td>2.34</td>
<td>1.79</td>
<td>3.05</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Somnolent</td>
<td>1.60</td>
<td>1.43</td>
<td>1.79</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Previous stroke</td>
<td>1.52</td>
<td>1.43</td>
<td>1.61</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1.03</td>
<td>0.97</td>
<td>1.09</td>
<td>ns</td>
</tr>
<tr>
<td>ICH or unspecified stroke</td>
<td>1.14</td>
<td>1.05</td>
<td>1.25</td>
<td>0.003</td>
</tr>
</tbody>
</table>

The reference value to comatose and somnolent was fully awake. ADL indicates activities of daily living; CI, confidence interval; ICH, intracerebral hemorrhage; and RR, relative risk.
consciousness levels at admittance was higher in the group not followed up (17.3% versus 8.5%).

Correspondingly, of 12-month survivors, 15,574 patients were lost to follow-up, of whom 6668 patients never received the questionnaire because of missing addresses, invalid social security numbers, protected identity, or recurrent stroke. Compared with the group that was followed up, the proportion of previous stroke was higher (34.6% versus 18.3%) in the group not followed up. The proportion of patients living in a 1-person household was higher in the group not followed up (52% versus 42.4%).

Discussion

Our results show that from 3 months onwards, functional outcome is not stable over time. In this large longitudinal study of 12-month survivors, 1 in 6 patients deteriorated in functional outcome between 3 and 12 months poststroke. Women ≥75 years were most susceptible to deterioration, with dependency proportion levels rising from 23.2% to 45.5%. The RR of ADL-dependency at 12 months was 31% higher in women, and women were also more susceptible to deterioration. Other independent predictors of unfavorable outcome were diabetes mellitus, atrial fibrillation, smoking, decreased consciousness level at admittance, and hemorrhagic or unspecified stroke.

Previous longitudinal studies have shown that neurological recovery in terms of body functions is largely complete within 3 months poststroke. However, there are only a few studies on stroke cohorts with repeated measurements of functional long-term outcome, and all were confined to patients admitted to rehabilitation units rather than unselected cohorts. Deterioration in mobility was seen in 43% between discharge and 1 year follow-up. The smaller proportion (16%) that deteriorated in the present study might reflect differences in study population, that is, the majority in an unselected stroke cohort consists of minor strokes, hence a large proportion of ADL independent. Another problem is the different outcome measures used in the studies, making direct comparisons difficult. Motor recovery in terms of functioning (ADL) was not stable beyond 3 months in this cohort, whereas motor function in terms of indoor mobility showed little change between 3 and 12 months (data not shown). Dressing and toileting, perhaps requiring a larger complexity of motor activity, accounted for all deterioration from ADL independency to dependency.

In the present study, the group that deteriorated between 3 and 12 months showed a higher proportion of females and individuals with higher age, higher proportions of atrial fibrillation, diabetes mellitus, previous stroke, and subjects living alone. Probably because of high age, those who deteriorated were discharged with a lower proportion of statins in unadjusted data. In patients with atrial fibrillation, the proportion treated with warfarin was only 35% in those who deteriorated compared with 58% in the stable group (Ullberg T, personal communication).

Previous studies on sex differences in stroke outcome have shown conflicting results that may partly be explained by geographic differences in incidence, risk factor profiles and stroke genetics, and hospital and rehabilitation treatment. The results of our study concur with studies that found female sex to be predictive of ADL dependency after stroke. In a systematic review by Gall et al, it was hypothesized that women may be more vulnerable than men to worse outcomes because of differences in demographic, social, and medical histories.

In the present study, women were ≥4 years older than men and a slightly higher proportion had atrial fibrillation. Moreover, in those who deteriorated after 3 months, the majority was female and almost a third had atrial fibrillation. Previous studies have shown more severe strokes in women and a higher proportion of cardioembolic strokes, and additionally, female sex has been found to be an independent risk factor in cardioembolic stroke. That may in part contribute to the higher RR of disability at 12 months in women. Despite the fact that this study excluded patients with prestroke disability and adjusted for possible confounders, there was still a small but significant effect of female sex on risk of long-term disability.

Strengths of the study include the large sample size and the high coverage rate of Riksstroke (all hospitals and >80% of acute stroke patients in Sweden). Therefore, selection bias is expected to be low, and the sample should be representative of the Swedish stroke population. This study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statements. Dependency in activities of daily living is a robust outcome measure, in this case using the core variables of functioning (dressing, toileting, and mobility).

Although we used the core variables of the modified Rankin Scale and the Barthel Index, results might differ slightly from the full scales, and this can be considered a limitation of this study. Another limitation was the difference in follow-up at 3 and 12 months. For practical reasons, the follow-up procedures in Riksstroke are based on questionnaires. Local resources permit nurse follow-up in a minority of participating hospitals. At 3 months, some patients were offered a nurse interview (completed in 17%). Our clinical experience is that, as compared with the answers given during nurse interview, patients tend to underestimate their disability when self-reporting. In the most disabled, a caregiver or next of kin filled out the questionnaires, and it cannot be ruled out that this might have influenced the responses, but it is unlikely that dependency was overrated. Furthermore, we lack information on the deteriorated group, including data on recurrent strokes or hospital admissions for other reasons. There were a fairly large number of patients lost to follow-up both at 3 and 12 months (attrition bias), representing the 1-year survivors with the worse outcome. Therefore, the result of the study is most likely an underestimation of ADL dependency at both 3 and 12 months.

Conclusions

Transition from ADL independence to dependence was observed in a high proportion of patients between 3 and 12 months. This finding challenges current beliefs that a 3-month follow-up can be used as the sole standard time point for evaluation of stroke outcome. Deterioration was common in the elderly and in women, in particular. With a growing proportion of people age ≥75, this becomes an important matter. Probable explanations for deterioration are high rates of comorbidities in the elderly and social isolation.

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The Swedish Stroke Association and the Region Skåne founded this study.

Disclosures
None.

References


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**SUPPLEMENTAL MATERIAL**

Supplemental Table I. Baseline data in patients not followed up and followed up respectively at 3 months.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Not followed up at 3 m n(%)</th>
<th>Followed up at 3 m n(%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age mean (SD)</td>
<td>72.57(14.03)</td>
<td>73.93(12.01)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>Female gender</td>
<td>3,083(46.9)</td>
<td>23,079(46.5)</td>
<td>ns</td>
</tr>
<tr>
<td>Living alone</td>
<td>3,382(51.8)</td>
<td>22,446(45.3)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td><strong>Vascular risk factors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>1,339(20.5)</td>
<td>9,497(19.1)</td>
<td>p=0.01</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>1,753(27)</td>
<td>12,281(24.9)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>Current smoker</td>
<td>1,071(18.7)</td>
<td>7,299(15.8)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>Previous stroke</td>
<td>1,951(30)</td>
<td>10,889(22.1)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>Previous TIA</td>
<td>545(8.3)</td>
<td>4,197(8.4)</td>
<td>ns</td>
</tr>
<tr>
<td>Hypertension</td>
<td>3,615(55.7)</td>
<td>28,968(58.8)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td><strong>Diagnosis</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ischemic stroke</td>
<td>5,506(83.7)</td>
<td>44,061(88.7)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>ICH</td>
<td>890(13.5)</td>
<td>4,674(9.4)</td>
<td></td>
</tr>
<tr>
<td>Non-specified stroke</td>
<td>183(2.8)</td>
<td>949(1.9)</td>
<td></td>
</tr>
<tr>
<td><strong>Consciousness level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fully awake</td>
<td>5,398(82.8)</td>
<td>45,140(91.5)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>Somnolent</td>
<td>781(12.0)</td>
<td>3,572(7.2)</td>
<td></td>
</tr>
<tr>
<td>Comatose</td>
<td>344(5.3)</td>
<td>637(1.3)</td>
<td></td>
</tr>
</tbody>
</table>
Supplemental Table II. Baseline data in patients not followed up and followed up respectively at 12 months.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Not followed up at 12 m n(%)</th>
<th>Followed up at 12 m n(%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age mean (SD)</td>
<td>73.47(13.57)</td>
<td>73.22(11.68)</td>
<td>p=0.03</td>
</tr>
<tr>
<td>Female gender</td>
<td>7,298(46.9)</td>
<td>17,190(46.0)</td>
<td>ns</td>
</tr>
<tr>
<td>Living alone</td>
<td>8,063(52.0)</td>
<td>15,803(42.4)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td><strong>Vascular risk factors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>3,297(21.3)</td>
<td>6,809(18.3)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>Atrial Fibrillation</td>
<td>4,317(27.9)</td>
<td>8,355(22.5)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>Current smoker</td>
<td>2,523(17.8)</td>
<td></td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>Previous stroke</td>
<td>5,352(34.6)</td>
<td>6,790(18.3)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>Previous TIA</td>
<td>1,484(9.5)</td>
<td>2,972(7.9)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>Hypertension</td>
<td>9,072(58.8)</td>
<td>21,432(57.8)</td>
<td>p=0.03</td>
</tr>
<tr>
<td><strong>Diagnosis</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ischemic stroke</td>
<td>13,047(86.1)</td>
<td>33,216(88.8)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>ICH</td>
<td>1,830(11.8)</td>
<td>3,441(9.2)</td>
<td></td>
</tr>
<tr>
<td>Non-specified stroke</td>
<td>337(2.2)</td>
<td>736(2.0)</td>
<td></td>
</tr>
<tr>
<td><strong>Consciousness level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fully awake</td>
<td>13,317(86.3)</td>
<td>34,506(92.8)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>Somnolent</td>
<td>1,606(10.4)</td>
<td>2,278(6.1)</td>
<td></td>
</tr>
<tr>
<td>Comatose</td>
<td>517(3.3)</td>
<td>386(1.0)</td>
<td></td>
</tr>
</tbody>
</table>
RIKS-STROKE – 3-MONTH FOLLOW-UP

These details are to be completed by nursing staff at the stroke unit

Personal ID number I___I___I___I___I___I___I___I
Name ........................................................................................................................................
Address* ....................................................................................................................................
Postal address* ..........................................................................................................................
Telephone*..................................................................................................................................
Municipality code for follow-up (Voluntary information) I___I___I
Municipality code for follow-up (Voluntary information) I___I___I
Reporting hospital I___I___I___I Department I___I___I___I

* Address, postal address and telephone number are only to be given on the paper form and will not be entered electronically in the register.

Planned follow-up date for this questionnaire (year, month, day) I___I___I I___I___I I___I___I

The questionnaire is to be completed 3 months after the stroke

Instructions:

- If you need help completing the questionnaire that is fine. Please state in question 29 who answered the questionnaire.

- If you do not know the answer to a question, and there is no "Don't know" option, simply leave the question unanswered.

- Put an X in the box that best corresponds to your situation.

1. Where are you living currently?

I___I = Live in my own home, without home help service. (Home help service does not refer to home nursing or advanced home nursing).

I___I = Live in my own home, with home help service. (Home help service does not refer to home nursing or advanced home nursing).

I___I = Special housing (e.g. nursing home, service flat, short-term housing, sheltered housing, transitional care unit, respite care or equivalent).

I___I = Emergency hospital (e.g. medical, neurology, surgical ward)

I___I = Geriatric/Rehab clinic

I___I = Other ..................................................................................................................................
2. Do you live alone?

I___I = Yes, I live completely alone.
I___I = No, I live with my spouse/partner or other person e.g. sibling, children, parents

3. How is your mobility now?

I___I = I can get around by myself both indoors and out
I___I = I can get around by myself indoors, but not outdoors
I___I = I get help from someone else to move around

4. Do you need help from someone else to visit the toilet?

I___I = I can manage to visit the toilet by myself
I___I = I need help to visit the toilet

5. Do you need help getting dressed and undressed?

I___I = I can manage to get dressed and undressed by myself
I___I = I need help to get dressed and undressed

6. After your hospital stay, have you been to see a doctor or been given an appointment to see the doctor again?
   NB! You can choose more than one response.

I___I = Yes, at the hospital (in the general surgery or the ward)
I___I = Yes, at the health centre or equivalent (e.g. private doctor's surgery)
I___I = Yes, at the day rehabilitation centre
I___I = Yes, at my special housing or in my own home
I___I = No
I___I = Don't know
7. After your hospital stay, have you **been to see** a nurse or **been given an appointment** to see the nurse again?
   NB! You can choose more than one response.
   
   I___I = Yes, at the hospital (in the general surgery or the ward)
   I___I = Yes, at the health centre or equivalent (e.g. private doctor's surgery)
   I___I = Yes, at the day rehabilitation centre
   I___I = Yes, at my special housing or in my own home
   I___I = No
   I___I = Don't know

8. Do you think that your need for support or assistance from the health service or municipality has been met?
   
   I___I = Yes, completely
   I___I = Yes, partly
   I___I = No
   I___I = I did not need/want any support or assistance
   I___I = Don't know

9. What type of support or assistance have you had from the health service or the municipality **after your stay in hospital**?  
   NB! You can choose more than one response.
   
   I___I = Day rehabilitation/Team rehabilitation
   I___I = Home rehabilitation
   I___I = Short-term housing
   I___I = Other support (e.g. doctor, nurse, physiotherapist, occupational therapist, social worker or speech therapist)
   I___I = Home help service
   I___I = Alarm
   I___I = I did not need/want any support or assistance
   I___I = Don't know
10. Are you currently dependent on support or assistance from relatives/friends?
   I ___ I = Yes, completely dependent
   I ___ I = Yes, partly dependent
   I ___ I = No, not at all
   I ___ I = Don't know

11. Do you have difficulty....? NB! You can choose more than one response.
   I ___ I = Speaking
   I ___ I = Reading
   I ___ I = Writing
   I ___ I = Swallowing
   I ___ I = None of the above
   I ___ I = Don't know

12. Have you seen a speech therapist for assessment or treatment of your ability to speak, swallow or write?
   I ___ I = Yes
   I ___ I = No
   I ___ I = Don't know

13. Do you smoke?
   I ___ I = Yes
   I ___ I = No
   I ___ I = Don't know
14. Do you feel depressed?
   I____I = Never or almost never
   I____I = Sometimes
   I____I = Often
   I____I = Constantly
   I____I = Don't know

15. Are you taking any medication for depression?
   I____I = Yes
   I____I = No
   I____I = Don't know

16. Are you taking any medication for high blood pressure?
   I____I = Yes
   I____I = No
   I____I = Don't know

17. How would you assess your general health?
   I____I = Very good
   I____I = Quite good
   I____I = Quite poor
   I____I = Very poor
   I____I = Don't know
18. Do you feel tired?
   I____I = Never or almost never
   I____I = Sometimes
   I____I = Often
   I____I = Constantly
   I____I = Don't know

19. Do you have any pain?
   I____I = Never or almost never
   I____I = Sometimes
   I____I = Often
   I____I = Constantly
   I____I = Don't know

20. Do you have difficulty remembering things?
   I____I = Never or almost never
   I____I = Sometimes
   I____I = Often
   I____I = Constantly
   I____I = Don't know

21. How satisfied or dissatisfied are you with the care you received during your stay in hospital?
   I____I = Very satisfied
   I____I = Satisfied
   I____I = Dissatisfied
   I____I = Very dissatisfied
   I____I = Don't know
22. How satisfied or dissatisfied are you with the way staff dealt with you during your stay in hospital?

I___I = Very satisfied
I___I = Satisfied
I___I = Dissatisfied
I___I = Very dissatisfied
I___I = Don't know

23. How satisfied or dissatisfied are you with one-on-one consultations with doctors during your stay in hospital?

I___I = Very satisfied
I___I = Satisfied
I___I = Dissatisfied
I___I = Very dissatisfied
I___I = Did not have any one-on-one consultations with a doctor
I___I = Don't know

24. How satisfied or dissatisfied are you with the stroke information provided?

I___I = Very satisfied
I___I = Satisfied
I___I = Dissatisfied
I___I = Very dissatisfied
I___I = Have not received any stroke information
I___I = Don't know

25. Do you know where to turn to if you need support or assistance after your stay in hospital?

I___I = Yes
I___I = No
I___I = Don't know
Rehabilitation or training refers to exercises to improve or maintain mobility and the ability to cope with daily life.

26. How satisfied or dissatisfied are you with the rehabilitation or training during your stay in hospital?

- I ___ I = Very satisfied
- I ___ I = Satisfied
- I ___ I = Dissatisfied
- I ___ I = Very dissatisfied
- I ___ I = Did not need rehabilitation or training during my stay in hospital
- I ___ I = Needed but did not get rehabilitation or training during my stay in hospital
- I ___ I = Don't know

Rehabilitation or training refers to exercises to improve or maintain mobility and the ability to cope with daily life.

27. How satisfied or dissatisfied are you with the rehabilitation or training after your stay in hospital?

- I ___ I = Very satisfied
- I ___ I = Satisfied
- I ___ I = Dissatisfied
- I ___ I = Very dissatisfied
- I ___ I = Did not need rehabilitation or training after my stay in hospital
- I ___ I = Needed but did not get rehabilitation or training after my stay in hospital
- I ___ I = Don't know

28. Are you undergoing rehabilitation/training right now?

- I ___ I = Yes
- I ___ I = No, but need to
- I ___ I = No, don't need to
- I ___ I = Don't know
29. Who answered this questionnaire?

I___I = Patient alone in writing
I___I = Patient with the assistance of a relative/friend or nursing staff
I___I = Patient by telephone
I___I = Someone else
I___I = Patient on return visit to hospital/health centre
I___I = Nursing staff only
I___I = Relative only

Many thanks for your help.

After checking that you have answered all 29 questions,
please return this form to us in the enclosed reply envelope.
Riks-Stroke – 1 års-uppföljning

Årligen insjuknar cirka 30 000 personer i stroke i Sverige. Det är mycket betydelsefullt att de som drabbas av stroke får en så bra vård och omsorg som möjligt.

Kvalitetsregistret Riks-Stroke kartlägger hur omhändertagandet efter strokeinsjuknandet fungerar. Vi har genomfört en uppföljning efter tre månader med en enkät som du kanske tidigare besvarat.

Nu planerar vi att följa upp alla personer som vårdats på sjukhus för stroke också ett år efter insjuknandet. Detta gör vi i samarbete med Sveriges Kommuner och Landsting och Socialstyrelsen.

Frågorna i enkäten inriktas på hälsa och stöd efter sjukhuvudstolten samt på kommunala insatser i vård och omsorg.

Syftet med denna undersökningen är att ge ökade kunskaper om de som insjuknat i stroke och deras behov av stöd och hjälpinsatser ett år efter insjuknandet. Vi jämför också kvaliteten i den vård och omsorg som olika landsting, sjukhus och kommuner ger.


Om något är otydligt rörande enkäten och dess frågor kan du kontakta ansvarig på ScandInfo. Telefonnummer hittar du på nästa sida. Om du däremot har några frågor om stroke ber vi dig kontakta din läkare.

Vi ber dig svara på frågorna och skicka tillbaka enkäten i det portofria svarskuvertet så snart som möjligt. Instruktioner för hur du ska fylla i enkäten finner du på nästa sida.

Ett stort tack på förhand för din medverkan!

Kjell Asplund
Professor, Registerhållare
Norrlands universitetssjukhus

Josefine Björnsson
Undersökningsledare
ScandInfo
Kontakt:

Om du behöver komma i kontakt med ScandInfo eller har frågor angående enkäten kan du kontakta ScandInfos Riks-Stroke-support på telefon: 031-743 44 79 eller e-mail: riksstroke@scandinfo.se

Sekretess:

De uppgifter som du lämnar skyddas av sekretesslagen samt av bestämmelserna i personuppgiftslagen (PUL). PUL-ansvarig är Västerbotts läns landsting, Norrlands Universitets sjukhus, 901 85 Umeå.

Alla som arbetar med undersökningen har tystnadsplikt enligt 9 kap. 4§ i sekretesslagen. I de resultat som kommer att redovisas i rapportform framgår aldrig vad enskilda personer har svarat. Numret längst ner på enkäten är till för att ScandInfo under insamlingen ska kunna se vilka som har svarat och vilka som ska få en påminnelse.

För att inte belasta dig med frågor om uppgifter som redan finns i folkbokföringsregistret kommer de svar du lämnar att kompletteras med uppgifter om kommun och personnummer.

Riks-Stroke kommer även att samordna dina svar med tidigare registreringar från vårdtillfället och 3-månadersuppföljningen.

Instruktioner:

- Om du behöver hjälp att fylla i formuläret går det bra. Ange i fråga 30 vem/vilka som besvarat formuläret.

- Om du som besvarar frågeformuläret inte vet svaret på frågan och svarsalternativet “Vet ej” saknas lämnas frågan obesvarad.

Enkäten kommer att läsas maskinellt. När du besvarar enkäten ber vi dig därför att tänka på att:

- Använda kulspetspenna med svart eller blå färg, inte röd. Använd inte blyertspenna.

- Skriva tydliga siffror.

- Markera dina kryss så här: ☒ Inte så här: ☒

- Om du råkar kryssa i fel ruta, stryk över hela rutan och sätt kryss i rätt ruta: ■ ☒
1. **Var vistas du nu?**
   - □ Eget boende, utan kommunal hemtjänst
   - □ Eget boende, med kommunal hemtjänst
   - □ Särskilt boende (t.ex. sjukhem, ålderdomshem, servicehus, korttidsboende, gruppboende, slussplats, växelboende eller motsvarande)
   - □ Akutsjukhus (t.ex. medicin, neurolog, kirurgklinik)
   - □ Geriatrisk-/Rehabklinik

2. **Bor du ensam?**
   - □ Ja, jag bor helt ensam
   - □ Nej, jag delar hushåll med make/maka/sambo eller annan person t.ex. syskon, barn, föräldrar

3. **Hur är din rörlighet nu?**
   - □ Jag kan förflytta mig ensam både inomhus och utomhus
   - □ Jag kan förflytta mig ensam inomhus, men inte utomhus
   - □ Jag får hjälp av annan person vid förflyttning

4. **Får du hjälp av någon vid toalettbesök?**
   - □ Jag klarar toalettbesök helt själv
   - □ Jag får hjälp vid toalettbesök

5. **Får du hjälp med på- och avklädnings?**
   - □ Jag klarar på- och avklädnad helt själv
   - □ Jag får hjälp med på- och avklädnings

6. **Får du hjälp med dina matinköp?**
   - □ Jag klarar matinköp helt själv
   - □ Jag får hjälp med matinköp
   - □ Ej aktuellt, jag bor på särskilt boende

7. **Får du hjälp med städning?**
   - □ Jag klarar städningen helt själv
   - □ Jag får hjälp med städningen
   - □ Ej aktuellt, jag bor på särskilt boende

8. **Får du hjälp med tvätten?**
   - □ Jag klarar tvätten helt själv
   - □ Jag får hjälp med tvätten
   - □ Ej aktuellt, jag bor på särskilt boende

   +
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Ansökt om bistånd eller hjälp från kommunen</td>
<td></td>
</tr>
<tr>
<td>Har du ansökt om exempelvis larm, färdtjänst, hemtjänst etc.?</td>
<td>□ Ja</td>
</tr>
<tr>
<td>10. Hemtjänst i form av personlig vård</td>
<td></td>
</tr>
<tr>
<td>Är dina behov tillgodosedda avseende exempelvis hjälp med på- och avklädning och/eller toalettbesök?</td>
<td>□ Ej i behov av hemtjänst för personlig vård</td>
</tr>
<tr>
<td>11. Hemtjänst i form av service</td>
<td></td>
</tr>
<tr>
<td>Är dina behov tillgodosedda avseende exempelvis hjälp med städning och/eller matinköp?</td>
<td>□ Ej i behov av hemtjänst för städ eller matinköp etc.</td>
</tr>
<tr>
<td>12. Hjälpmedel</td>
<td></td>
</tr>
<tr>
<td>Är dina behov tillgodosedda avseende exempelvis rollator, kryckkäppar, rullstol, toalettförhöjning, duschpall, bostadsanpassning eller talhjälpmedel så som pektavla, kommunikator m.m.?</td>
<td>□ Ej i behov av hjälpmedel</td>
</tr>
<tr>
<td>13. Färdtjänst</td>
<td></td>
</tr>
<tr>
<td>Är dina behov tillgodosedda avseende Färdtjänst?</td>
<td>□ Ej i behov av färdtjänst</td>
</tr>
</tbody>
</table>
14. Hemsjukvård
   År dina behov tillgodosedda avseende exempelvis hjälp med läkemedelsintag, dosettdelning, säromläggning, kateterskötsel, påtagning av stödstrumpor m.m.?
   - Ej i behov av hemsjukvård
   - Ja, helt tillgodosedda
   - Ja, delvis tillgodosedda
   - Nej, inte alls tillgodosedda
   - Vet ej

15. Rehabilitering efter utskrivning från sjukhus
   Med rehabilitering menas träning och utbildning för att förbättra eller bibehålla rörlighet och förmåga att klara ditt dagliga liv.
   Har ditt behov av rehabilitering efter strokeinsjuknandet tillgodosetts?
   - Har inte haft något behov av rehabilitering
   - Ja, mina behov av rehabilitering är tillgodosedda
   - Nej, mina behov av rehabilitering är endast delvis tillgodosedda
   - Nej, mina behov av rehabilitering är inte alls tillgodosedda
   - Vet ej

16. Är du idag beroende av hjälp/stöd av anhörig/nästående?
   - Nej, inte alls
   - Ja, delvis beroende
   - Ja, helt beroende
   - Vet ej

17. Har du återgått till förvärvsarbete?
   - Nej, jag förvärvsarterade inte före insjuknandet i stroke
   - Ja, i samma utsträckning som före insjuknandet i stroke
   - Ja, men i mindre utsträckning än före insjuknandet i stroke
   - Nej, men jag planerar att återgå till förvärvsarbete
   - Nej
   - Vet ej
18. Arbetsinriktad rehabilitering
   Med arbetsinriktad rehabilitering menas till exempel utformning av rehabiliteringsplan, arbetsanpassning, arbetsjälpmelding, ändrade arbetsuppgifter/arbetstider, arbetsträning, omplacering eller utbildning.
   Har du fått arbetsinriktad rehabilitering efter strokeinsjuknandet?
   - Nej, jag förvärvsarbetade inte före insjuknandet i stroke
   - Ej i behov av arbetsinriktad rehabilitering
   - Ja, i allra högsta grad
   - Ja, men inte tillräckligt
   - Nej, inte alls

19. Har du haft hjälp av någon av följande för att återgå till förvärvsarbete? (flera svarsalternativ är möjliga)
   - Ej aktuellt, jag förvärvsarbetade inte före insjuknandet i stroke
   - Arbetsgivare
   - Försäkringskassan
   - Arbetsförmedling
   - Är egen företagare
   - Vet ej

20. Har du det senaste halvåret varit på besök hos läkare, eller har du en inplanerad tid?
   - Ja
   - Nej
   - Vet ej

21. Har du kontrollerat ditt blodtryck sedan du skrevs ut från sjukhuset efter din stroke?
   - Ja
   - Nej
   - Vet ej

22. Har du varit till tandläkare eller tandhygienist det senaste året?
   - Ja
   - Nej
   - Vet ej
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>23. Hur bedömer du ditt allmänna hälsotillstånd?</td>
<td>✅ Mycket gott</td>
</tr>
<tr>
<td></td>
<td>✅ Ganska gott</td>
</tr>
<tr>
<td></td>
<td>✅ Ganska dåligt</td>
</tr>
<tr>
<td></td>
<td>✅ Mycket dåligt</td>
</tr>
<tr>
<td></td>
<td>✅ Vet ej</td>
</tr>
<tr>
<td>24. a) Röker du?</td>
<td>✅ Ja</td>
</tr>
<tr>
<td></td>
<td>✅ Nej</td>
</tr>
<tr>
<td></td>
<td>✅ Vet ej</td>
</tr>
<tr>
<td>b) Har du erbjudits rökavvänjning efter strokeinsjuknandet?</td>
<td>✅ Inte aktuellt, jag rökte inte före strokeinsjuknandet</td>
</tr>
<tr>
<td></td>
<td>✅ Ja</td>
</tr>
<tr>
<td></td>
<td>✅ Nej</td>
</tr>
<tr>
<td></td>
<td>✅ Vet ej</td>
</tr>
<tr>
<td>25. Har du smärta?</td>
<td>✅ Aldrig eller nästan aldrig</td>
</tr>
<tr>
<td></td>
<td>✅ Ibland</td>
</tr>
<tr>
<td></td>
<td>✅ Ofta</td>
</tr>
<tr>
<td></td>
<td>✅ Ständigt</td>
</tr>
<tr>
<td></td>
<td>✅ Vet ej</td>
</tr>
<tr>
<td>26. Har dina behov av smärtlindring tillgodosetts?</td>
<td>✅ Inte behov av smärtlindring</td>
</tr>
<tr>
<td></td>
<td>✅ Ja, helt</td>
</tr>
<tr>
<td></td>
<td>✅ Ja, delvis</td>
</tr>
<tr>
<td></td>
<td>✅ Nej, inte alls</td>
</tr>
<tr>
<td></td>
<td>✅ Vet ej</td>
</tr>
<tr>
<td>27. Känner du dig nedstämd?</td>
<td>✅ Aldrig eller nästan aldrig</td>
</tr>
<tr>
<td></td>
<td>✅ Ibland</td>
</tr>
<tr>
<td></td>
<td>✅ Ofta</td>
</tr>
<tr>
<td></td>
<td>✅ Ständigt</td>
</tr>
<tr>
<td></td>
<td>✅ Vet ej</td>
</tr>
</tbody>
</table>
Vänligen kontrollera att du besvarat samtliga frågor 1-29!

Hjärtligt tack för din medverkan!

Skicka in detta formulär i bifogat svarkuvert.
Table 3. Multivariable Model of Independent Factors Associated With Use of Prophylactic Anticoagulation After ICH*

<table>
<thead>
<tr>
<th>Patient characteristics</th>
<th>Adj. OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (per 5 y)</td>
<td>0.92</td>
<td>0.90</td>
</tr>
<tr>
<td>Black (vs white)</td>
<td>1.61</td>
<td>1.49</td>
</tr>
<tr>
<td>Hispanic (vs white)</td>
<td>1.11</td>
<td>0.97</td>
</tr>
<tr>
<td>Other race (vs white)</td>
<td>1.03</td>
<td>0.94</td>
</tr>
<tr>
<td>Medicaid/self-pay</td>
<td>1.15</td>
<td>1.05</td>
</tr>
<tr>
<td>Emergency department arrival</td>
<td>0.80</td>
<td>0.75</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>1.23</td>
<td>1.15</td>
</tr>
<tr>
<td>Congestive heart failure</td>
<td>1.52</td>
<td>1.38</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>1.31</td>
<td>1.20</td>
</tr>
<tr>
<td>Coronary artery disease</td>
<td>1.14</td>
<td>1.06</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hospital characteristics</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban hospital</td>
<td>1.43</td>
<td>1.24</td>
</tr>
<tr>
<td>Northeast hospital (vs Western)</td>
<td>2.24</td>
<td>2.02</td>
</tr>
<tr>
<td>Southern hospital (vs Western)</td>
<td>1.58</td>
<td>1.43</td>
</tr>
<tr>
<td>Midwest hospital (vs Western)</td>
<td>0.88</td>
<td>0.78</td>
</tr>
<tr>
<td>Beds (per 50)</td>
<td>1.04</td>
<td>1.04</td>
</tr>
</tbody>
</table>

*Variables entered into the full model: age, sex, race, Medicaid, teaching hospital, ED arrival, diabetes mellitus, hypertension, CHF, atrial fibrillation, CAD, urban/rural, region, and hospital volume (beds).

**Key Words:** case fatality | cohort | disability | outcome | stroke

**Abstract 9**

**Changes in Functional Outcome Over the First Year After Stroke**

**An Observational Study From the Swedish Stroke Register**

Teresa Ullberg, MD; Elisabet Zia, PhD; Jesper Petersson, PhD; Bo Norrving, PhD

*(Stroke. 2015;46:389-394.)*

**Key Words:** case fatality | cohort | disability | outcome | stroke

**배경과 목적**

뇌졸중 예후에 대한 대규모 추적연구(longitudinal study)는 드물다. 이 연구는 뇌졸중 후 첫 1년간 기능적 예후의 예측 인자와 변화를 분석하는 것이 목적이다.

**방법**

스웨덴 뇌졸중 레지스트리(Swedish Stroke Register)로부터 일상생활능력(activities of daily living, ADL)이 독립적이었다가 2008년부터 2010년 사이 급성뇌졸중으로 입원한 환자들의 자료를 얻었다. 지명률(case fatality)은 스웨덴 연구 등록(Swedish Population Register)과 연계하여 평가하였다. ADL은 옷 입기, 화장실 사용, 식내 이동의 독립 또는 의존도에 의해 정의되었고 3개월과 12개월에 평가하였다. ADL 의존의 예측 인자는 다변량 분석을 통해 평가하였다.
결과
총 64746명의 환자가 포함되었다. 3개월 치명률은 13.1%(남성 11.6% 대 여성 14.8%; P<0.0001), 12개월째는 18.2%(남성 16.4% 대 여성 20.3%; P<0.0001)이었다. 35064명의 추적관찰 생존자 중에서, 3개월 및 12개월에 ADL의존 비율은 각각 16.2%(남성 15.9% 대 여성 19.2%; P<0.0001) 및 28.3%(남성 22.7% 대 여성 34.9%; P<0.0001)이었다. 3개월과 12개월 사이 ADL의존으로의 악화를 예측하는 인자는 여성(RR=1.56, 95% CI, 1.50–1.70), 당뇨병(RR=1.50; 95% CI, 1.05–1.60), 입원 당시 혼수(RR=2.34; 95% CI, 1.79–3.05), 이전 뇌졸중(RR=1.52; 95% CI, 1.43–1.61), 출혈뇌졸중 또는 미분류(unspecified) 뇌졸중(RR=1.14; 95% CI, 1.05–1.25), 심방세동(RR=1.11; 95% CI, 1.04–1.17)이었다.

결론
ADL 독립에서 의존으로의 전환은 3개월에서 12개월 사이에 높은 비율의 환자에서 관찰되었고, 뇌졸중 이후 가능성이 3개월 이후에는 안정화된다는 일반적인 믿음에 이의를 제기한다. 악화는 여성에서 더 흔하게 발생했는데, 그들 중 1/6이 의존으로 전환되었다.