Stroke patients in general practice. Impact, recovery and the GP's management in the first six months poststroke
Schuling, Jan

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The questions answered in this study, concern the characteristics of stroke patients in general practice, the course of the disease during the first six months after stroke and the GP’s management of these patients. Besides, we investigated which measuring instruments are most suitable to assess poststroke recovery.

During the research period the participating GPs reported all new patients with stroke in their practice, first ever or recurring. These patients were examined by a researcher at 1, 3, 8 and 26 weeks poststroke, at what time a number of instruments were applied to assess the functional status and to determine the possible presence of cognitive impairment, depression or aphasia. At the same time the GPs were interviewed and data were taken from the patient’s file.

Literature review. (Chapter 3)
Knowledge on stroke is mainly based on information gathered from selected populations, whereas the design of the various studies differs greatly. On account hereof the value of these data is hard to estimate. This phenomenon, in addition to the expected increase in number of stroke patients, makes further study in the field of stroke much desirable.

The acute phase. (Chapter 5)
Stroke patients in general practice were mainly aged, to very aged people having a considerable amount of comorbidity, and whose functional status had been worse than that of their contemporaries.

A third of the patients were treated by the GP himself. More than half of the patients were referred for hospitalization. In choosing a strategy the GP considered a complex of patient related and environmental factors. The severity of the syndrome and the availability of care played the most important part in this matter. Diagnostic uncertainty was hardly of any importance. When comparing the cohort of patients treated at home with those that were hospitalized, it appears that the GP mostly referred the younger patients for further diagnosis and the very old when they were almost completely dependent.

Management at home. (Chapter 6)
The morbidity of patients managed at home was extensive, but well-known complications such as thrombosis, respiratory and urinary tract infections and bedsores were rare. The recovery showed the same pattern in patients managed at home as in those admitted to hospital, notwithstanding the widely divergent treatment-programs.

In the acute fase the GP frequently visited the patient at home. After a couple of days a distinct decline in contact-frequency set in. Gradually the interval between the visits increased from one to four weeks, in which the GP frequently called in the assistance of a physiotherapist and a district nurse. Evidently the GP keeps close contact with
the patient during the acute phase, when the patient's condition can change greatly and when home-care must be initiated.

The amount of care provided by the GP (the number of contacts and the length of follow-up) appeared not to correlate with the severity of the stroke. Presumably co-morbidity and environmental factors are more decisive in this matter than stroke severity. In view of the fact that recovery may well take up to six months poststroke, the mean duration of attendance of 3 months seems rather short for managing the rehabilitation process.

Methods of assessment for the GP. (Chapter 7)
As over half of all patients are at home or have returned home at three weeks poststroke, follow-up of stroke recovery is a responsibility of the GP. A measuring instrument to assess the patient's functional status is of great importance in this matter. In order to evaluate instruments in view of this purpose, the functional charts of Nelson, the so-called COOP-charts, the Barthel ADL Index and the Zung self-rating scale for depression were registered at fixed intervals poststroke.

The COOP-charts as well as the Barthel Index prove to be sensitive to changes, which occur during the first six months poststroke. To assess the severity of the disabilities the patient experiences and the course of the recovery the GP can apply the Barthel ADL Index extended with information obtained from the COOP-charts 'emotional condition' and 'social activities'.

The Sickness Impact Profile. (Chapter 8)
Up to now the ability to perform daily life activities (ADL) has been the most important criterion against which the result of the treatment is measured. Before adding new relevant criteria one should have a clear notion of the consequences a stroke has on all facets of daily life. To this purpose we monitored the SIP and the Barthel ADL Index of patients at 8 and 26 weeks poststroke. The outcome was compared with that of a control group of elderly people in general practice.

The scores of the stroke cohort were much higher (worse) on all subscales of the SIP, than those of the controlgroup, although they showed a similar pattern. The greatest differences were found in matters of housekeeping, recreational and leisure activities and mobility. This outcome proves that these aspects of the functional status ought to be an important criterion in future when evaluating treatment-programs. For this purpose the SIP itself does not seem to be the most suitable one, as the instrument is not sensitive enough for intra-individual change in the course of time and moreover on account of its extensive questionnaire which poses too great a burden on the patient.

The Frenchay Activities Index. (Chapter 9)
The Frenchay Activities Index (FAI) is a questionnaire developed to assess stroke patients' disabilities and handicaps. We studied the validity and the reliability of this instrument and intended to obtain the 'normal values' in an open population of elderly. The FAI was monitored twice on the group of stroke patients (retrospectively concerning the prestroke status of a group of people of 65 years and older).

The reliability of the unweighted scores was supported by correlations between impact profile scores. Further analysis of the items into two categories: disease specific and non-disease specific, showed that the item 'reading books' and 'getting dressed' were more sensitive disease-specific instruments. The FAI is not a disease-specific instrument but an all purpose questionnaire.

Comparing the scores of the three instruments one may conclude that they are a consequence of aging and were not significantly higher in the group of stroke patients after six months than in the control group of community dwelling elderly.

Predictors of outcome in stroke patients. (Chapter 10)
We assessed the outcome of stroke patients concerning their functional status in the first six months poststroke. A disturbed swallowing present during the first month poststroke and disturbed swallowing present during the first six months poststroke were predictors of poor outcome. At the end of the first year of follow-up one of these conditions was still present in 50% of the patients. The difference between the SIP scores of the patient group and the control group after six months poststroke was used as a measure for the outcome. The SIP score was significantly correlated with the functional status in the first six months after stroke. The functional status at six months poststroke was a predictor of the functional status at one year poststroke. The SIP score was significantly correlated with the functional status at one year poststroke. The functional status at one year poststroke was a predictor of the functional status at two years poststroke. The SIP score was significantly correlated with the functional status at two years poststroke.

Conclusions. (Chapter 11)
The longitudinal character of the FAI showed that the high percentage of patients drop out of the cohort gives a good representation of the functional status.

Two questionnaires were applied in the patient's daily life: the SIP and the FAI. Considering our study results we recommend the use of the FAI in stroke outcome research.

The cognitive screening test was completed in too few cases to allow for statistical analysis of the functional status.
concerning the prestroke status and at 26 weeks poststroke) and once on a control group of people of 65 years and older.

The reliability of the unweighted scores was sufficient. The construct validity was supported by correlations between the FAI, the Barthel ADL Index and the Sickness Impact Profile scores. Further analysis of the subscales of the FAI showed that the items describe two categories: domestic and outdoor activities. The reliability of the instrument can be improved by introducing two subscores instead and by eliminating the items ‘reading books’ and ‘gainful work’. The FAI adapted in this way is a suitable disease-specific instrument to assess disabilities and a number of handicaps. The questionnaire is easy to complete and can be monitored within 10 minutes.

Comparing the scores of the three groups shows which changes in functional status are a consequence of aging and which are due to stroke. In doing so it is apparent that the group of stroke patients already suffered, prior to the stroke, more impairments than the control group of contemporaries.

Predictors of outcome in stroke patients. (Chapter 10)
We assessed the outcome of stroke treatment according to mortality and recovery of functional status in the first six months poststroke. Six months poststroke 32 percent of the patients had died. A disturbed consciousness, urine incontinence, aphasia or disturbed swallowing present during the first contact proved to correlate with higher mortality. At the end of the first week this was only the case as far as urine incontinence and aphasia was concerned.

The difference between the FAI score prior to stroke and the FAI score 6 months poststroke was used as a measure for recovery. Analysis of factors possibly affecting recovery showed a significant correlation with the initial Barthel score, but no influence of sex, age or aphasia. Only the severity of the stroke is decisive for recovery. The initial Barthel score is a good predictor of the eventual outcome. Of the patients having a partner, those treated at home recovered better than those admitted to hospital. This outcome underlines the importance of environmental factors on poststroke recovery. As long as there is no specific therapy available, the GP should take care that these environmental factors are chosen in such a way that the chances for the patient’s recovery are optimum. For patients having a partner this is evidently the home-situation.

Conclusions. (Chapter 11)
The longitudinal character of this study and the severity of the disease led to a high percentage of patients dropping out. Notwithstanding this restriction, the studied cohort gives a good representation of stroke patients in general practice.

Two questionnaires were applied to register the consequences of stroke in regard to the patient’s daily life: the Sickness Impact Profile (SIP) and the Frenchay Activities Index (FAI). Considering our study results we prefer the FAI as measuring instrument in stroke outcome research.

The cognitive screening test and the Zung self-rating scale for depression could be completed in too few cases to the influence of depression and cognitive decline upon the functional status.
In the group of patients having a partner the functional status six months poststroke proves to be better when treated at home than when treated in hospital. This outcome certainly deserves further study regarding the part of the partner and the effect of hospitalization.

The consequences of the study results with regard to patientcare are summarized in a number of guidelines for GPs.