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The management of stroke patients. Conference of experts with a public hearing. Mulhouse (France), 22 October 2008[☆]

Orientation des patients atteints d'AVC. Conférence d'experts avec audition publique. Mulhouse le 22 octobre 2008[◇]

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Abstract

The objective is to define as early as possible appropriate criteria for managing patients who have had a cerebrovascular accident (CVA), or stroke, beginning in the Neurovascular and Acute Care Services, in order to facilitate the patient's return home (or the equivalent of home) or continuing care in the most appropriate health care facility.

Three clinical assessment tools are used in the initial care phase because they are robust and reproducible:

– the National Institutes of Health Stroke Scale (NIHSS) score appears to be the best clinical assessment tool. It is the reference scale used during the acute phase of a stroke because it predicts the patient's chances of recovery and the medium-term functional recovery;

– the Glasgow Coma Scale (GCS) is an initial assessment tool useful in predicting the medium-term evolution in terms of level of consciousness, essentially in cases of cerebral hemorrhage or severe cerebral infarction;

– the Barthel Index (BI), scored from 0 – 100, is used during the first seven days after a stroke, and the index's progression over the following two weeks is a factor in predicting the functional recovery of stroke patients.

The values of these tools must take the markers of clinical stability into account during the initial phase. These markers also have a predictive value:

– the curve of the relationship between blood pressure (BP) and the prognosis of stroke patients would have a U-shape, with extreme BP values having a negative influence;

– hyperthermia and hypoxia are also early predictive factors of poor functional and vital prognoses;

– the presence and continuation of urinary incontinence and/or swallowing disorders are important predictive factors for a poor functional prognosis and a higher mortality rate in the medium term.

Complementary examinations make it possible to approximate the anatomical, metabolic and physiological status of the injured cerebral parenchyma early on, when the processes of reparation and plasticity restoration have already begun. The reparation process is a complex multifactor phenomenon that can, at any moment, be called into question; it cannot be predicted with certainty by complementary examinations only, at least at the current level of knowledge.

Two parameters seem decisive in using imaging to predict stroke recovery: MRI exploration of the cerebral parenchyma and the exploration of vascular permeability via perfusion imaging. Currently, the place of functional and molecular imaging appears to be limited. Among the possible neurophysiological explorations, only motor evoked potentials (MEP) represent a simple, non-invasive, low-cost procedure that can have additional prognostic value. Hyperglycemia also has a negative impact on the functional and vital prognoses. The usefulness of biomarkers has not yet been validated.

Other clinical factors influence the prognosis. Though age is an aggravating factor in the vital prognosis of stroke patients, it cannot be considered an independent factor in the functional prognosis due to the multiple co-morbidities associated with age. Diabetes, ischemic cardiopathies and atrial fibrillation are co morbidities that worsen the functional and vital prognoses of stroke patients.

Cognitive disorders without dementia also have a negative influence on the functional prognosis, particularly hemi spatial neglect and phasic disorders accompanied by comprehension problems. Post-stroke dementia plays a very detrimental role. However, even though they can delay the acquisition of increased autonomy, cognitive disorders are not an obstacle for rehabilitation, and depression apparently has no influence on the rehabilitation results.

Family is an essential factor. Family support is a necessary condition for the patient's discharge from the hospital and affects the length of the hospital stay. Wide-ranging effective organized family support improves the patient's functional status. The factors that make it possible for the patient to return home are the existence of home support, a moderate level of impairment and being of the masculine gender. Social rank and socioeconomic status also play a role: when rank and status are low, they are not only stroke risk factors but also increase the risks of poststroke mortality and of institutionalization.

For the health care system to perform well, stroke management plans must respect two requirements:

– individual requirement: the best possible match between the patient's needs and possibilities and the follow-up services, without missing any patient opportunity for an optimal return to normalcy;

– organizational requirement: early intervention and the optimal transfer time in order to insure system flexibility and make it possible for the greatest number of patients to benefit from care in a specialized facility, particularly during the acute phase of the stroke.

Patients will preferably be directed towards:

– an intermediary or Intensive Care facility and then a rehabilitation facility specialized in brain injuries. Patients with severe impairment (NIHSS over 16), when they are conscious and off artificial ventilation, with or without a tracheotomy; malignant stroke patients, postdecompressive hemicraniectomy; and stroke patients with basilar trunk occlusion, after thrombolysis recanalization;

– a follow-up and rehabilitation care facility specialized in neurological disorders. Patients with medium-level hemiplegia (NIHSS between 5 and 15 and/or Barthel Index $\geq$ 20) who begin to improve in the first 7 days and younger patients with more serious hemiplegia if there is no rehabilitation facility specialized in brain injuries nearby;

– a non-specialized follow-up and rehabilitation care facility or one that is specialized in the disorders of polypathologic elderly patients who are dependent or at risk of being dependent. Patients with serious hemiplegia without any signs of recovery in the first 7 days, who have multiple indicators of a poor prognosis (Barthel Index < 20, persistent incontinence, multiple complex deficiencies) and/or who do not need a coordinated multidisciplinary rehabilitation program or will not, in the immediate future, be able to take part in at least 3 hours of exercise per day;

– a facility for dependent elderly people. Elderly patients, especially those over 80 years of age, who are socially isolated and/or have had a severe stroke resulting in motor and cognitive deficits, swallowing disorders and incontinence;

Except for the case of minor strokes that spontaneously evolve towards recovery, the decision for an early return home for patients with deficits is based on three criteria: need (i.e., a persistent incapacity that is nonetheless compatible with life at home and rehabilitation), feasibility (i.e., patient residence in the same geographic zone as the hospital) and safety (i.e., stability of the medical situation). This kind of return is more frequent in northern Europe than in France, and it is significantly correlated with a better medium-term recovery, in terms of preventing death and increasing autonomy and satisfaction. The positive impact of an early discharge is more significant in moderately dependent patients (initial Barthel Index > 45).

Two factors are essential for the success of such early returns home:

– a home visit carried out before the patient's discharge;

– a multidisciplinary team (physiotherapists, occupational therapist, speech therapist, doctor, nurse and social worker) who, at the end of the patient's hospital stay, takes responsibility for appropriate patient care immediately following the patient's discharge, for a period of approximately three months and a minimum frequency of four sessions per week.

The Early Supported Discharge (ESD) model developed in Anglosaxon countries, which facilitates and conditions this kind of discharge plan, does not correspond exactly to the French health system's *Hospitalisation à domicile* (HAD), but the correspondence between the two is worth exploring. In the absence of a multidisciplinary intervention, the early long-term intervention (at least 5 months) of an occupational therapist in the patient's home can reduce the patient's level of impairment after an early return home (less than 1 month after the stroke).

Maintaining the patient in his/her home starts by identifying the needs of both the patient and the caregivers, updating these needs as the situation evolves. The multidisciplinary team plays an important role in maintaining, even increasing, the patient's autonomy, and improving the patient's quality of life and that of his/her caregivers, while ensuring an optimal level of safety in the home. This is accomplished by educating both the patient and caregivers and by home interventions. The failure to maintain the patient at home can be caused by the worsening of the patient's condition (e.g., intercurrent disorders, loss of autonomy) or unpredictable factors (e.g., death of the patient's spouse), but also by the exhaustion of the patient's caregivers.