Methods.— Twenty-four subjects (age 46 ± 15) with chronic paresis were ran-
dominated into two groups (n=12/group): implanted FES vs AFO. Kinematics gait analysis at free speed assessed speed, step length, cadence, maximal active dorsiflexion and eversion in swing, dorsiflexion at late swing, without and with assistive device (OFF vs ON) at 3 and 6 months of treatment onset (M3, M6).

Results.— Between-groups comparison showed similar treatment effects. The treatment-associated (both groups pooled) kinematic changes included increases in gait velocity (+13%; OFF, 0.69 ± 0.06 m/sec; ON, 0.78 ± 0.06 m/sec, \( P=1.2E-4 \)), parietic step length (+4%; \( P=0.009 \)), non-parietic step length (+9%, \( P=0.019 \)), cadence (+6%, \( P=4.5E-4 \)), maximal active dorsiflexion (OFF, -4.5 ± 1.4\(^\circ\); ON, 1.1 ± 1.5\(^\circ\), \( P=2.3E-6 \)), and reduced late swing plantar flexion (OFF, -11.5 ± 1.3\(^\circ\); ON, -2.8 ± 1.5\(^\circ\), \( P=1.5E-7 \)) and ankle inversion (-30%, \( P=1.3E-4 \)).

Conclusion.— Three and 6 months of implanted peroneal nerve FES or AFO produced similar positive effects based on gait laboratory analysis.

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CO81-006-e
Assessment of spasticity with sonoelastography in stroke patients
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Keywords: Sonoelastography; Spasticity; Stroke

Introduction.— Sonoelastography (SE) which is a ultrasound-based technique can assess tissue elasticity. We have investigated the capability of SE to show muscle stiffness in spasticity and the correlation of SE findings with muscle architecture features in spastic gastrocnemius muscles of stroke patients.

Material and methods.— Twenty-six stroke patients (20 males, 63.6%; 6 females, 36.4%) who had spasticity of more than modified Ashworth scale 1+ in gastrocnemius muscle were evaluated with ultrasonography. Muscles architecture features ( pennate angle, fascicle length, muscle thickness and muscle compressibility) of gastrocnemius medialis and lateralis on both sides were scanned using B-mode. Elasticity Index (E) was measured using SE in subcutaneous region and muscle. E value ranged from 0 to 6 (6 indicates the hardest tissue).

Results.— E ratio was significantly higher in the affected gastrocnemius medialis and lateralis compared to the unaffected side (\( P<0.05 \)). Pennate angle, fascicle length, muscle thickness and muscle compressibility were lower in the affected side. However, there was only significant difference in muscle compressibility on both side and pennate and on lateral side (\( P<0.05 \)). There was not any significant correlation between muscle architecture features and SE findings.

Discussion.— SE as a novel diagnostic tool can be used to assess spasticity in stroke.

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Round table

TR04-001-e
Early supported discharge (ESD) services for stroke patients
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Academic Section of Geriatric Medicine, Glasgow, United Kingdom

Stroke services in developed countries usually feature a period of care in hospital. However, patients and families often face major challenges at the time of discharge home from hospital and in the subsequent weeks of adjusting to care at home. Early supported discharge (ESD) services challenge this model of care by aiming to accelerate discharge home and provide rehabilitation input in the home setting. A substantial number of clinical trials have tested this approach to care but there remain significant challenges in describing the important components of ESD services and ensuring that they are implemented widely.

The objectives of this presentation are to:

– summarize the rationale for ESD services after stroke;
– provide a detailed description of these services as tested in the randomized trials – we are aware of 16 randomized trials of which two tested very atypical ESD services and a further two are not yet reported. These trials suggest that ESD services will:

– reduce the length of hospital stay,
– reduce the number of patients requiring long term nursing home care,
– reduce the number of patients with long term disability,
– summarize the progress in developing guidance for establishing and running such services.

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TR04-002-e
Early discharge after stroke: A Belgian experience
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Keyword: Stroke discharge rehabilitation

In Belgium, the health care financing system puts a pressure to reduce as much as possible the length of stay in all the acute care hospitals. Unfortunately, this system is mainly based on diagnoses (All Patients Refined Diagnostic Related Groups) and does almost not take into account the functional ability of the patients. Consequently, the neurologists try to discharge their stroke patients as soon as possible. The neurologists working in the acute hospital then have to collaborate with other facilities, usually independent from their institutions. If the patient returns home, collaboration with the community-based care is required. If the patient is unable to return home, he will be discharged to rehabilitation facilities or to a nursing home.

Since several years, our Physical Medicine and Rehabilitation department have developed a close collaboration with the Neurology departments for two purposes. On one hand, to provide an early rehabilitation after stroke when the patient stay in the stroke unit and on the other hand, to help the neurologist to discharge the stroke patients by organizing their inpatient or outpatient rehabilitation. To optimize this organization, we are trying to develop a Clinical Pathway.

During this round table, I will share our daily clinical practice experience in this field.

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TR04-003-e
Stroke rehabilitation and early supported discharge in Ireland
M. Delargy
NRH, Dun Laoghaire, Ireland

Introduction.— Ireland is currently analyzing the implications of developing the preferred pathway of Early Supported Discharge (ESD) through a national research project.

Materials and methods.— The research team have reviewed the randomized control trials literature and studied cost benefit analysis in ESD.

Results.— The literature suggests that there may be a trend towards cost reduction associated with ESD compared with centre-based rehabilitation. Length of stay for stroke patients is shorter and internationally the clinical outcomes appear equivalent to conventional centre based care. Review of the available literature suggests that ESD is feasible and comparable to or superior to conventional care. The research team are currently reviewing the outcomes from a year-long ESD initiative at a large urban general hospital. The objective is to present a case for facilitating the appropriate discharge of suitable stroke patients from acute hospitals to home by supporting them with a well coordinated community rehabilitation team.
Discussion.— As part of the round table format, Mark Delargy will review the challenges and benefits of pursuing an ESD initiative for acute stroke patients.

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TR04-004-e

Early post-stroke rehabilitation in Portugal
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The Portuguese National Health System is an organized and hierarchized system managing almost all the stroke patients. In Portugal the “Via Verde do AVC” – Stroke greenway – aims that any patient suffering a stroke is assisted in the therapeutic time window for thrombolysis, if that will be the case. The acute phase usually happens in a general hospital and the Rehabilitation Department begins managing the patient as soon as possible. As a rule in the Stroke Units, a PRM physician acts as consultant, on a daily basis. At discharge, if needed, the patient can continue his Rehabilitation treatment, as outpatient, in a clinic near her/his home, or as inpatient. In this situation, the patient goes to a Rehabilitation Centre, for comprehensive (and intensive) Rehab or for the Continuum of Care Network, with four options: Domiciliary Service, Convalescence Unit, Median term Unit and Long term Unit (table). The system is well thought but in most of the hospitals there is no physiatrist in the discharge management team as well as no defined criteria for choosing to which kind of facility the patient should go.

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TR04-005-e

Organization of the rehabilitation after hospitalization in Italy
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Keywords: Stroke; Rehabilitation; Organization; Discharge

Rehabilitation pathways after rehabilitation in Italy are very patchy due to the regional autonomy of the single region. The organization range from a mainly private organization with a definite difference from hospital and community, to systems mainly public where the rehabilitation from the hospital to the community in a smooth continuity of care. In the first case, rehabilitation is provided from the patients himself that buy services. In the second case, the physiatrist decides the appropriate setting at discharge. From the acute hospital the possible setting is: severe brain injury rehabilitation center in the case of an injury with a GCS ≤ 8; moderate-severe stroke to intensive rehabilitation unit; the mild-moderate to the community rehabilitation (home or outpatients). If severe capability is present a low intensity rehabilitation facility is used. In the community, rehabilitation is organized in specific rehabilitation services. The intervention is concentrated on the post acute phase although a part of activity if for the “chronic phase”. A real continuity of rehabilitation between the acute and the post-acute phase without a lengthy waiting list is one of the main goals.

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TR04-006-e

Very early supported discharge in Sweden
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Keywords: Stroke; Early supported discharge

The talk will present the situation of rehabilitation in the home setting in Sweden as well as the early supported discharge. There will be information on the recommendations in Sweden, how many that are getting early supported discharge and how this is organized. Some information will also be given regarding an ongoing study of very early supported discharge. How feasible is this and who is considered suitable to be discharge early and still need rehabilitation?

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TR04-007-e

Early supported discharge after stroke in France
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Early supported discharge is a main challenge after stroke. The length of stay in acute stroke unit then in rehabilitation unit could be shortened, what needs an adapted outpatient organization for rehabilitation care. In France there are 125,000 new strokes per year, among them about 100,000 with physical and/or cognitive consequences lasting more than 24 hours. After the acute stage, 33.8% of the survivors are admitted in an inpatient rehabilitation facility (specialized unit for 10.4%, general or geriatric rehabilitation unit for 23.4%), most of the patients being treated at home or in an institutionalized facility. Physical and speech therapies, but not occupational therapy can be provided at home with national insurance reimbursement. In case of a complex rehabilitation program needed, rehabilitation in daily hospital can be provided. The national plan for stroke 2010–2014 made recommendations to improve the local organization of rehabilitation care. A specialized PRM, Neurologist or Geriatric consultation is mandatory within the first year. Mobile PRM units, at least made of a PRM specialist, an occupational therapist and a social worker, in charge of the organization of rehabilitation care from the acute stage to the latest stage at home are encouraged but financing remains an issue.

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Posters

P420-e

Effect of AFO on gait stability and balance control in patients with hemiparetic stroke
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Keywords: Ankle-foot orthosis; Stroke; Gait stability; Balance; Walking capacity

Introduction.— The aim of this study was to quantitatively analyze the effect of ankle-foot orthosis (AFO) on gait stability and to probe the use of AFO to improve walking capacity, gait stability and balance control in patients with post-stroke.

Methods.— A total of 25 inpatients with prior chronic hemiparesis resulting from stroke who could walk at least 10 m without assistance. The maximum walking speed and gait asymmetry index were examined using the motion analysis system. Functional balance was assessed using the Functional Ambulation Categories, Berg Balance Scale and Five-Times-Sit-to-Stand Test.

Results.— The AFO had positive effects on hemiplegic gait parameters, improving walking speed, gait stability and functional balance (P < 0.01). Pair wise comparisons suggested that there were significant differences between using AFO immediately and no only on the maximum walking speed, Functional Ambulation Categories and gait asymmetry index (P < 0.05). After 4 weeks, there were significant differences the walking speed, gait asymmetry index and functional balance control (P < 0.01).