Saint Cyril's
Rehabilitation Unit

Severe Spasticity
Specialist Inpatient Rehabilitation Programme

St Cyril's rehabilitation unit offers a prompt assessment and admission policy to patients presenting with severe lower limbs' spasticity who are not responding to management in the community.

Our team is very experienced in the management of neurological impairments in general and increased muscle tone management is a specialist interest for both our medical consultant and therapy staff. Our rehabilitation programme integrates physical and occupational therapy with a robust medical management which may include invasive interventions such as chemodenervation, nerve blocks or functional electrical stimulation. Throughout the rehabilitation programme, close liaison with the patient's specialists, primary care and community rehabilitation team is secured to ensure the integration of the programme with the overall management strategy with the patient's primary care physicians, specialists, and community teams.

Background

Spasticity means over activity in the muscles which follows damage to the brain or spinal cord. Spasticity matters because it causes pain and deformity which:
- Increase disability (reduced mobility, self care, ease of hygiene etc)
- Increase complications, e.g. pressure sores
- Feed into a vicious cycle of poor posture which in turn exacerbates the spasticity (1).

Management of spasticity usually takes place in the community with pharmacological management and physical therapy (2). For some patients, the severity of spasticity is considerable and community management may fail to provide adequate reduction of the muscles' tone leading to significant risk of complications such as permanent joint deformities, refractory chronic pain or pressure sores (3).

Care pathway for spasticity management inpatient service

1. Referral

Self-referrals and referrals by health care professionals are usually considered. However, we particularly welcome referrals from the patients' neurologists, rehabilitation specialists or physiotherapists.

In most cases a member of St Cyril's clinical staff will assess the patient prior to admission. However, under special circumstances patients may be admitted directly based on the information provided by the referring clinicians.

2. Initial Assessment

During the initial assessment in the patient's home, the philosophy of the rehabilitation programme, patient's expectations and goals will be discussed. For most patients, the admission will be for a period of 8 – 12 weeks. Following this a decision will be made to either continue with the rehabilitation programme or to discharge the patient. The decisions are purely made on clinical grounds and are made in consultation with the patient's local neurological and rehabilitation team.

4. **The rehabilitation programme**

Most patients will present with a well recognized set of symptoms and issues including painful spasms, joint deformities, difficulties with posture and positioning. The skin in the pressure areas is often compromised.

Medical assessment and management

Medical issues leading to worsening of the spasticity such as urinary tract infections etc will be identified and managed appropriately. The medical management of the high muscle tone may include systemic medications, chemodenervation using agents such as botulium toxin, nerve blocks or functional electrical stimulation (4,5,6).

Access to neurosurgical and orthopaedic expertise is ensured with interventions such as intrathecal baclofen, tendon release or rhyzotomies rarely considered in selected patients (7, 8).

Management of associated symptoms such as pain can be very challenging and will require close supervision and frequent alterations of medications used. Adequate management of pain is of paramount important as it enables the patient to tolerate the physical therapy which may produce considerable discomfort especially in the early stages.

Physical and occupational therapy

For most patients regular and intensive physical therapy is the main stay of management. The physical management will focus on stretching, ensuring appropriate positioning and posture. Several orthotics may be used to maintain the stretches on the injected muscle (9, 10, 11, 12, and 13).

Clinical supporting services

All patients will have access to the services of several clinicians and professionals if the need is identified during assessment or at any point throughout the rehabilitation programme. Patient's nutritional needs will be assessed by a nutritionist, swallowing and speech impairments by a speech and language therapists.

4. **Discharge**

The discharge process will be coordinated with the local services to ensure continuity of the approach, maintaining and building on the achievements made during the inpatient stay. Long term support and collaborative work with the local teams are an integral aspect of the philosophy of our specialist service.

Input of different disciplines during admission

The following is an estimate of the expected input from our clinical team:

- Medical review: three times a week
- Consultant ward round: once a week
- Occupational therapy: once / twice a day
- Physiotherapy: once / twice a day
- Assistant therapist: four times a day
- Dietetics: once a week

Indicators of effectiveness and service monitoring

The following outcome measures will be evaluated on admission, 6 weekly and on discharge:

1. General activity measures: - Functional Independence Measure (FIM)
   - Barthel Score
2. SF-36 Health Survey Physical Functioning Section
3. Medical review indicating active medical issues addressed
4. Patients questionnaire

The service will be subjected to the same rigorous governance procedures as other clinical services in the St George’s Health Care Group.

This will include regular clinical audits, comprehensive complaint procedures and risk management assessments.

Tariff: Cost on Assessment

References:

1 - Guidelines for the use of Botulinum Toxin (BTX) in the management of spasticity in adults. London: RCP clinical effectiveness and evaluation unit. July 2002

2- Management of spasrticity and joint deformities In: Multiple Sclerosis: National clinical guidelines for diagnosis and management in primary and secondary care. . London: RCP clinical effectiveness and evaluation unit. 2004

3- Turton A. Does use of a daily muscle stretch regime prevent development contractures and muscle stiffness in stroke patients? *National Research Register* Issue 1, 2001.

4- AY, Kirazli Y, Kismali B, Aksit R. Mechanisms of action of phenol block and botulinus toxin type A in relieving spasticity. Electrophysiologic investigation and follow-up. *Am J Phys Med Rehabil* 1999; **78**: 344-349.

5- Johnson CA, Wood DE, Swain ID, Tromans AM, Strike P, Burridge JH. A pilot study to investigate the combined use of botulinum neurotoxin type A and functional electrical stimulation, with physiotherapy, in the treatment of spastic dropped foot in subacute stroke. *Artificial Organs* 2002; **26**:263-266.

6- Hyman N, Barnes M, Bhakta B *et al*. Botulinum toxin (Dysport) treatment of hip adductor spasticity in multiple sclerosis: a prospective, randomised, double blind, placebo controlled, dose ranging study. *Journal of Neurology, Neurosurgery & Psychiatry* 2000;**68**:707–12.

7- Beard S, Hunn A, Wight J. *Treatments for pain and spasticity in multiple sclerosis: a rapid and systematic review.* Draft HTA report on pain and spasticity.

8- Sampson FC, Hayward A, Evans G *et al*. The effectiveness of intrathecal baclofen in the management of patients with severe spasticity. InterTASC Report, 2000.

9- Turton A. Does use of a daily muscle stretch regime prevent development contractures and muscle stiffness in stroke patients? *National Research Register* Issue 1, 2001.

10- Steffen TLM. Low-load, prolonged stretch in the treatment of knee-flexion contractures in nursing home residents. *Physical Therapy* 1995;**75**:886–95.

11- Light K, Nuzik S, Personius W, Barstrom A. Low-load prolonged stretch versus high-load brief stretch in treating knee flexion contractures. *Physical Therapy* 1984;**64**:330–3.

12- Moseley AM. The effect of casting combined with stretching on passive ankle dorsiflexion in adults with traumatic head injuries. *Physical Therapy* 1997;**77**:240–7.

13- Fox P, Richardson J, McInnes B *et al*. Effectiveness of a bed positioning program for treating older adults with knee contractures who are institutionalized. *Physical Therapy* 2000;**80**:363–72.