Spasticity Management: Long term follow up- a team approach

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Optimal management

Approach needs to be:
- Multidisciplinary
- Holistic
- Coordinated
  - Clinical governance, Protocol, Telephone help line
- Tailored to the individual
- Timely
Long term follow up for Intrathecal Baclofen (ITB)

- Pump battery life is between 5-7 years
- Baclofen stability 180 days
- Routine refill every 6/12

- Post implants more frequent visits as dose is being ‘fine tuned’
Holistic review every 6 months

- Assessment
  - General health
  - Trigger/ aggravating factors

- Efficacy
  - Goal attainment, outcome measures, joint therapy review

- Refill procedure

- Special circumstances
  - Changing dose, concentration, MRI, Dye tests
  - Trouble shooting
General review

- Any new problems
  - With underlying condition
  - With spasticity, pain, spasms
  - With treatment (side effects, reduced efficacy)

- Review current anti-spasticity treatment

- Weight, dentition

- Trigger factors
Triggers and noxious stimuli

Skin

Splints

Orthotics

Bladder

Pain, skin

Bowels

Seating & positioning
Assessment-Hands On

- Observe- posture, movement and alignment
- Observing - Gait
- Feel resistance to passive movement
- Determine biomechanical component
- Assess underlying weakness
Measures

- Review goal attainment
- Tone - Ashworth
- Range of movement – Goniometry
- Timed functional tasks, 10m walk
- Disease specific scales eg. MSSS-88
- Carer ratings for ease of care
Measures

- Spasm scale - (Penn et al 1989)
- Visual analogues of pain, comfort, leg stiffness
- Consider therapy review at least annually
In Practice

24yr man with CP, receiving ITB for 6 years, independently mobile however had reported falling over the last few months

- Moved to UK from USA
- Dose had been changed for years
- Booked to have assessment with PT
- All measures completed
- Recommendation to reduce dose 10%
Physical management of spasticity

- Standing
- Active exercise
- Passive movement
- Balance between movement and positioning
- Stretches
- Functional electrical stimulation
- Wheelchair posture and seating
- Splinting and the use of orthotics

Consider
In Practice

65yr man with MS, receiving ITB for 15 years
- His wife called help line reporting increase in spasms, but only at night
- Booked to have joint assessment PT / CNS
- Ax in lying and seating and all measures completed

- Recommendation
  - Advice given on physical management strategies
    - Side lying
    - Using profile element of bed
    - Seating alignment
    - Bladder and skin care
In practice: community physiotherapist

Linking with community team

**TIME**

Person with spasticity and their PT assessing function in home environment

Feed back to spasticity team (eg ITB)
Examine pump site examine skin and observe for any signs of infection (broken skin, tenderness and redness)
Telemetry

- Read pump
- Check:
  - Patient data
  - Baclofen concentration
  - Dose
  - Dosing schedule
  - Reservoir volume
  - Volume drug remaining
  - Alarms enabled

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Data stored

- Critical therapy data stored in pump for follow up at any recognised centre
  - Patient demographics
  - Pump implant information
  - Catheter : type, length / volume
  - Implant/Revision History

Notes
Position for refill

- No special requirements
- Tilt in space slightly tilted back for ease of access.
- Lying
Refill kit equipment
Refill procedure

- Asceptic technique
- Refill kit
- Locate central reservoir port
  Not catheter access port
- Empty pump and check volume removed appropriate
- Refill pump with appropriate concentration and volume
Refill procedure
Reprogramming

- Change reservoir volume
- Make any dose or dosage scheduling changes
- Check with 2 people;
  - Patient data
  - Baclofen concentration
  - Dose
  - Dosing schedule
  - Reservoir volume
  - Alarms enabled
  - Low reservoir alarm date
- Print copies for notes and patient held records
Principles of titration

- Change one thing at a time
- Do not change oral until getting a response from ITB
- Increase (10% - 20%)

Review spasticity in context of:
- Function at home and work
- Agreed Goal
- Previous measures
- Oral medication

No magic titration formula
Infusion Modes

- **Simple continuous**
  - Volume vs. Time graph

- **Single bolus + Simple continuous**
  - Volume vs. Time graph

- **“Flex” mode**
  - Volume vs. Time graph

- **Minimum rate**
  - Volume vs. Time graph
Careful consideration

- Changing the Baclofen concentration
- Complications with the pump and catheter
- Dye study
- MRI
Changing Baclofen concentration

Caution is needed to prevent accidental overdose

- Perform telemetry
- Empty the pump completely checking the expected reservoir volume
- Rinse the reservoir twice with normal saline
- Fill the pump with the new concentration solution
  - Usually 500-3000mcg/ml
- Reprogramme the pump with the new parameters (reservoir volume, concentration and any change in dose)
- Perform a bridging bolus
- Check all parameters with a colleague
Change of concentration

- Internal Pump
- Tubing
- DRUG
- Pump
- Reservoir
- Catheter

A Bridge bolus need to be completed
Catheter-Related Complications

- Kinking, disconnection
- Micro-tear
- Complete or partial occlusion
- Dislodgement or migration
- Fibrosis
- Detached catheter tip or catheter fragment(s) in the intrathecal space
SynchroMed II Pump Mechanics
Pump Refill
Dye Studies

Caution is needed to prevent accidental overdose
- Perform telemetry and stop pump
- Asceptic technique in Radiology
- Use catheter port access kit and locate catheter port
- Aspirate at least 2mls
If unable to aspirate stop procedure- do not attempt to flush
- Inject radiopaque dye and perform fluroscopy
- If resuming ITB restart pump and perform a catheter priming bolus (catheter volume only, not internal tubing)
- Check all parameters with a colleague
Post dye study

If resuming ITB restart pump and perform a catheter priming bolus (catheter volume only, not internal tubing)

Check all parameters with a colleague
MRI

Check with senior radiologist and pump manufacturer

- Scanning time may be increased due to metallic pump and artefact possible
- All rotar arm motorised pumps (Medtronic) will suspend drug delivery during scan

- Always perform telemetry 30 mins after imaging
- Follow manufacturer’s instructions to ensure pump log shows motor stall and recovery

- Check all parameters with a colleague
Help line

- Telephone help line
- Continuity of care and access when necessary
- Out of hours link to a Neurorehabilitation Unit which takes call, completing a template so accurate information is gathered
Ongoing management

- Management continues every 6 months
- Titration continues with 10%-20% intervals of increase
- Continue to have regular phone contact

Recent discussion with patient she expressed that she was very happy that her spasms and spasticity had gone but it has made her ‘face‘ her disability which was compounded by a longstanding low mood, however

“having more comfort, less pain and spasms I get a better nights sleep, so I feels more prepared to make changes in my life”. 
References