Independent prescribing by physiotherapists in neurological rehabilitation: Management of spasticity with botulinum toxin

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Spasticity - What and Why?

• Result of brain or spinal injury

• Muscle over-activity
  • Upper Motor Neurone syndrome (UMN)
    – Positive feature

• Results in unwanted effects
  • Pain
  • Contracture
  • Increased contribution to disability
Botulinum Toxin (BoNT)

- Produced by Clostridium botulinum
  - Serotypes A – G
  - Clinical preparations A or B
  - Licensed for spasticity in UK
    - Products: Botox®, Dysport® & Xeomin ® (All type A)

- Effects
  - Blocks pre-synaptic transmission
    - Neuromuscular junction

Dressler et al 2005
BoNT – The Technical bit!

- Injection
  - Target muscles
  - Anatomical expertise required
- Electromyogram, Ultrasound
  - Expertise developed
- Prescribing/ Administration
Physiotherapy prescribing

• Integration of:
  • Physical management
    – Different categories of patient need
      – Active function – task practice training
      – Passive function – physical management
  • Pharmacological management
    – Not just botulinum toxin
      – Focal, regional, systemic
    – Inpatient and community
    – Review and removal of unnecessary medications
Totality of treatment

- A complex intervention
  - Within an overarching rehabilitation or management programme
- Physiotherapists can offer
  - Integration of care and treatment
  - Cost efficiency in providing
    - all intervention in one place
Independent prescribers
Physiotherapy Vs Medical

• N = 139 undergoing spasticity management.
• Prescriber and injector
  • Physiotherapy n = 112
  • Medical n = 27
• All received concurrent therapy or a management programme
Results

• Goal Attainment Scale (GAS mean ‘T’ score)
  • Physiotherapy = 50.2
  • Medical = 49.6

• No significant difference in:
  • GAS ‘T’ score
  • Arm Activity measure (ArmA)
  • Modified Ashworth Scale

• Significant clinical improvement in
  • Whole group for these measures
### Goal Attainment Scaling (GAS) - Outcome

**Table:**

<table>
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<tr>
<th>Case</th>
<th>Pain</th>
<th>Associated reaction</th>
<th>Gait pattern</th>
<th>Care needs</th>
<th>Self-care</th>
<th>Baseline</th>
<th>Attained</th>
<th>Change</th>
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<td>20.4</td>
</tr>
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</table>

**Mean [Standard deviation]:**

- Baseline: 31.6 [4.0]
- Attained: 51.8 [11.7]
- Change: 20.2 [13.5]

0 = goal set and achieved in this area; −1 = goal set but not quite fully achieved; +1 = goal achievement somewhat greater than expectation; +2 = goal achievement much greater than expectation.

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Ashford and Turner-Stokes (2009)
Research: BoNT Goal Categorisation

• Goal-setting from
  • five published studies of botulinum toxin treatment for upper limb spasticity


• To develop a goal classification for
  • Development of a structured approach to goal setting and outcome evaluation

  Ashford, Fheodoroff, Jacinto, Turner-Stokes (2015)
Goal categories from GAS
Confirmation from ULIS II (n = 927)
Practice development: Goal directed care

• A system for:
  • Discussion of goals with patient and carers
  • Classification of goal
  • Evaluation of goals using
    – Goal Attainment Scaling
Physiotherapist contribution:

- Goal negotiation with patients, carers and MDT
- Development of rehabilitation programmes
  - Integration with spasticity intervention
- Independent Physiotherapy Prescriber
  - Undertaking botulinum toxin injections
- Research
  - Outcome measurement and goal attainment
  - Quantification of the totality of treatment
Acknowledgements

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