Managing Spasticity in the Outpatient Rehabilitation Continuum

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Schwab Rehabilitation Hospital

Schwab is a free standing inpatient rehabilitation facility (IRF) on the west side of Chicago, a member of a public hospital systems, serving patient populations including: stroke, amputation, spinal cord injury, traumatic brain injury and pediatrics. In 2012, our patient population was 76% African American/Black, 11% Hispanic/Latino, & 11% White.

Introduction
Spasticity affects many patients throughout the rehabilitation continuum of care. In the outpatient setting, nurses are frequently involved in the management of patients with spasticity, helping them to live more functional lives.

Spasticity is associated with central nervous system (CNS) injury. It is an inexorable result of the CNS resulting in a loss of descending inhibitory control. The clinical manifestation of spasticity, one component of the upper motor neuron syndrome, commonly affects patients with:
- Brain Injury
- Cerebral Palsy
- Stroke
- Spinal Cord Injury
- Multiple Sclerosis

Spasticity management involves treating the patient’s patient goals.

Phenol injection
- Physicians inject phenol to the nerve/motor point under anestheic guidance.
- Phenol is typically injected into large muscle groups and may be used to treat clonus.
- Phenol can be injected onto the motor nerve to promote chemical neuromuscular blockade.
- Onset is typically observed within several days and the duration is weeks to months.
- Phenol is an inexpensive alternative to botulinum toxin injection.
- Possible side effects:
  - Pain
  - Infection
  - Bleeding
  - Compartment syndrome

Baclofen injection
- Physicians inject baclofen to the nerve/motor point under anestheic guidance.
- Onset is typically 2 to 10 days and the injections usually have a lasting effect for up to 3 months at which time patients return for injections.
- Possible side effects:
  - Pain
  - Muscle weakness
  - Dysphagia
  - Breathing difficulties
  - Antibody formation
  - Allergy
  - Botulinum-like syndrome

Intrathecal baclofen therapy
- Physicians inject baclofen to the nerve/motor point under anestheic guidance.
- Phenol injection is ideal for the management of focal spasticity.
- Botulinum toxin blocks neuromuscular transmission by inhibiting acetylcholine release.
- Intrathecal baclofen is mixed with oral salines and is injected intramuscularly into select muscles.
- The most common diagnosis for patients treated with intrathecal injections is in the Schwab clinic: stroke, brain injury, spinal cord injury and cerebral palsy.

Table I Epidemiology

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cerebral Palsy</td>
<td>100%</td>
</tr>
<tr>
<td>Stroke</td>
<td>20%</td>
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<tr>
<td>Amputation</td>
<td>40%</td>
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</tbody>
</table>

Table II - Goals of Spasticity Treatments

<table>
<thead>
<tr>
<th>Goal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce spasticity</td>
<td>Improve hygiene</td>
</tr>
<tr>
<td>Increase pain</td>
<td>Improve dressing</td>
</tr>
<tr>
<td>Prevent contractures</td>
<td>Improve mobility</td>
</tr>
<tr>
<td>Prevent pressure sores</td>
<td>Ease positioning</td>
</tr>
<tr>
<td>Decrease caregiver burden</td>
<td>Improve fit and compliance with braces</td>
</tr>
<tr>
<td>Improve range of motion</td>
<td>Improve sleep</td>
</tr>
<tr>
<td>Improve transfers</td>
<td>Improve ambulation</td>
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</tbody>
</table>

Conclusion
While spasticity cannot be cured, there are a number of ways to treat it. The main goals of spasticity management are to relieve symptoms, increase function, improve patient independence and decrease caregiver burden. Nurses take an active role in the Schwab clinic to help patients with spasticity by helping with treatments and being involved in spasticity management.

Acknowledgements
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References
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