• INTRATHECAL THERAPY
• TREATMENT OF PAIN AND SPASTICITY

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Intrathecal Therapy

• Insertion of a drug into CSF space, commonly spinal CSF space, less commonly ventricular

• Bypasses systemic side effects and systemic breakdown, allowing lower dose of medications with higher efficacy to be used
Intrathecal Pump
Conditions Potentially Treated by Intrathecal Therapy

- Spasticity
- Pain
Spasticity

- Considerable increase in tone with passive movements being difficult due to rigidity in flexion or extension of affected parts

- Ashworth Score – Measures spasticity and increased tone
Spasticity

• Etiology – Upper Motor Neuron Injury
  • Stroke
  • Multiple Sclerosis – over 60% of patients
  • Spinal Cord Injury – occurs in over 50% of SCI patients, increased frequency in cervical SCI
  • Closed Head Injury – Clary Bateman
  • Cerebral Palsy

• Oral Therapy
  • Muscle Relaxers – Multiple
  • Baclofen
Oral Baclofen

- Goal – Decrease tone, increase range of motion, and facilitate rehabilitation procedures

- Functional Objectives – Improve gait, activities of daily living, and improve ease of care

- Efficacy – Improves spasticity in 70-87% of patients
Side Effects of Baclofen

• 10-75% of patients develop side effects
• Generally dose related and often improve
• Sedation/Somnolence, excessive weakness, vertigo, psychiatric (Hallucinations and paranoia can be with treatment or withdrawal of treatment), seizures (generally with Baclofen withdrawal and more frequently in patients with CHI related spasticity)
• 4-11% of patients need to discontinue oral Baclofen due to intolerable side effects
Baclofen Overdose

- Hypotonia, respiratory depression, coma, seizures, coma, cardiac conduction abnormalities

- Generally increase Baclofen doses slowly to avoid.

- Typically hypotonia is first sign, patient will report feeling too loose and baclofen dose will be decreased.
Pain Medications

- NSAIDS, muscle relaxers
- Tramadol
- Narcotics – Work on pain receptors on nerve cells. Do not relieve any underlying cause of pain but can provide pain control.
Oral Narcotic Side Effects

- Constipation
- Dry mouth
- Urinary dysfunction
- Constipation/intestinal blockages
- Lethargy
- Falls with fractures
- Mental dysfunction
- Tolerance
- Overdose
Intrathecal vs Oral Efficacy

- Baclofen: Intrathecal dose generally 1% of oral dose.
  - Start lower and titrate up. Generally at 2X the test dose used, so 100 mcg daily if 50 mcg test dose was successful
  - Increase 10-30% every 2 weeks (minimum time)
Intrathecal vs Oral Efficacy

- Morphine: Intrathecal dose 120X less than oral Morphine equivalent dose.
- Start intrathecal therapy generally at 50% of oral dose and titrate up.
- Typically plasma levels of meds given intrathecally are 100X less than meds given orally.
Baclofen Candidate Determination

- Patient arrives early, has Physical Therapy assessment using Ashworth Score
- 50 mcg intrathecal Baclofen injection via spinal tap
- PT assessment 2 and 4 hours after Baclofen
- Discharged home at 8 hours after Baclofen
- If no benefit may repeat at 75 mcg test dose and 100 mcg test dose
- Stroke, CP patient typically higher dose, MS lower.
Morphine Patient Determination

- Pain responsive to narcotics
- Survival greater than 3 months
Intrathecal Pump Insertion

- Lateral position
- Incision in abdomen and back
- Surgical time 1 hour
Surgical Issues

- Generally stay overnight
- IV antibiotics for 24 hours
- Can observe for signs of drug toxicity
- Risks – Infection, CSF leak, drug toxicity, catheter migration
Intrathecal Pump

1. The Baclofen pump is implanted under the skin in the abdomen.

2. The catheter is tunneled under the skin to the back.

3. The tip of the catheter rests between the 1st and 2nd Lumbar vertebrae in the intrathecal space.
Radiographic Appearance
TNC Pain Pump Data

• 15 Patients receiving intrathecal narcotics
• 50 pump refills performed – in office procedure
• Virtually all receiving morphine
• Generally referred by pain physicians when patients start having issues with oral narcotics
• Also have taken over management of pain pumps placed elsewhere when patient moves to Tallahassee region.
TNC Baclofen Pump Data

- 24 patients receiving intrathecal Baclofen
- 93 pump refills performed
- Most are patients with CP, stroke, MS, or SCI related spasticity
- Generally referred by Neurology and Pediatrics
Questions?