



Intrathecal Baclofen

Val Stevenson

Plan

- What is it, how does it work?
- Who is it for?
- How is it done?
- Evidence base
- Pros and cons
- Case study

Baclofen

- **GABA derivative (inhibitory neurotransmitter)**
 - Presynaptic inhibitory effect on the release of excitatory neurotransmitters
 - Postsynaptically decreases the firing of motor neurones
- **Effective orally but frequent side effects**
 - Drowsiness, confusion, dizziness, generalised weakness

Intrathecal Baclofen

- Concentration of GABA receptors at dorsal horn of laminae 1- 4
 - Intrathecal infusion is therefore delivered direct to site of action
- Intrathecal dose is approximately 1% of the oral equivalent
 - Avoids systemic side effects
- Requires pump implantation



Who is it for?

Criteria for ITB treatment:

- Severe lower limb spasticity
- Oral medication, therapy and nursing no longer managing spasticity effectively
- Responsive to ITB and no negative effect on function or posture
- Realistic, appropriate and achievable goals
- Individual/ Carer agrees with treatment goals and to be responsible for pump follow up

Areas Goal Set

■ Improve transfers	9	■ Improve perineal access	3
■ Relieve pain	8	■ Improve sleep	2
■ Improve sitting	7	■ Lower oral drugs	1
■ Use standing equipment	4		

34 goals set in 17 patients

Managing spasticity in people with multiple sclerosis. A goal orientated approach to intrathecal baclofen therapy. L. Jarrett et al. (2001) International Journal of MS Care, 3(4),2-11.

Contraindications to ITB therapy

- Known allergy to baclofen (need to have tried it orally prior to ITB)
- IV drug user
- Concomitant significant sepsis
 - Chronic pressure sores not a contraindication
- Psychological issues
 - Needle phobia, lack of commitment, body image issues
- ? Precarious ambulation

Not contraindications...

- Pregnancy or potential pregnancy
- MRSA colonisation
- Spinal fusion (cervical approach can be used if necessary)
- Epilepsy
- LP or VP shunts
- Malnutrition
- Need for MRI scans

How is it done?

Aspects of ITB service:

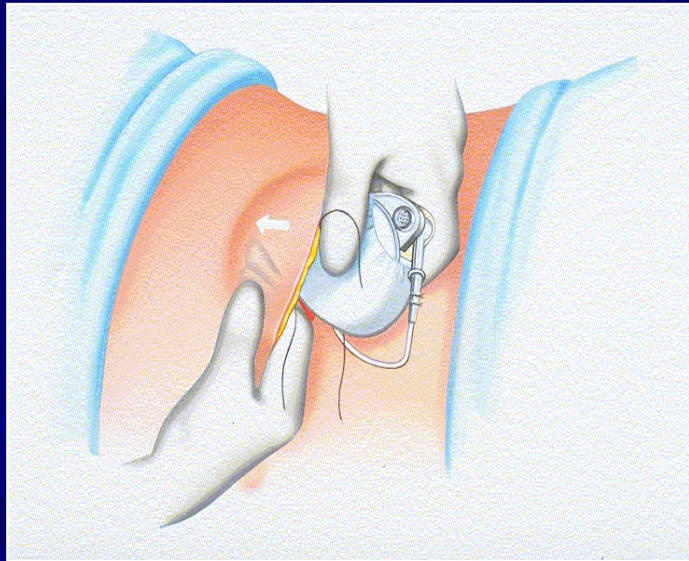
- MDT spasticity assessment & measures
- Trial
- Implant
- Discharge planning
- Long term follow up
 - Pump refill and dose titration
 - 24 hour help-line

Trial procedure

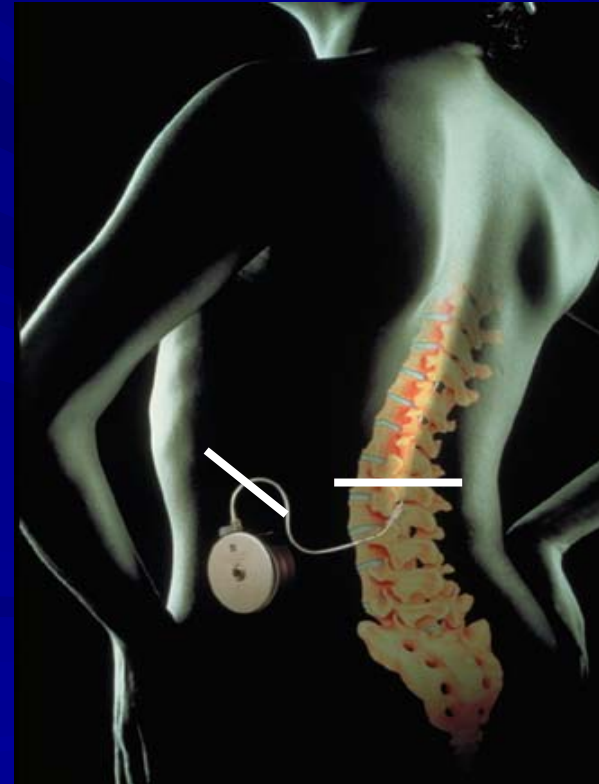
- Need ITU/ anaesthetic availability
- Continue normal oral medication
- Define goals of treatment and of trial
- Perform outcome measures pre and post
- Bolus or continuous infusion
 - LP's or temporary catheter
 - Children may have GA for catheter placement
 - Monitor vital signs every 30 mins

Pump Implant

Pump Pocket:
Abdominal Incision



Intrathecal Catheter:
Lumbar Incision



© Medtronic 2000

Wessex ACPIN Spasticity Presentation 2009. © Dr Val Stevenson

Programming



Computer Print Out

Pump Status	** ALARM ON **	05/01/94 15:30
Identification	: DAS	Cal Constant: 125
Low Reservoir Alarm	: ENABLED	Alarm Date: 07/04/94
Reservoir Volume	: 15.0 ml	Model: 8611H 18 ml
Alarm Volume	: 2.0 ml	No valve
Drug	: MORPH	
Concentration	: 10.0 mg /ml	
Dosing Units	: mg	
Low Battery Alarm	: ENABLED	Last Change Made : 04/15/94 13:45
Infusion: SIMPLE CONTINUOUS	RATE: 0.083 mg/Hr	2.000 mg/Day

Alarm On:
LOW BATTERY

Version 4.0A

F3-CHANGES F4-OPTIONS F5-PRINT

© Medtronic

Evidence base

- First used in 1985 for spinal cord injury¹
- Shown to be effective in;
 - Spinal cord and brain injury
 - Multiple sclerosis
 - Stroke
 - Cerebral palsy
- Benefit sustainable over time²
- More recently used in dysautonomias, dystonias

1. Penn RD, Kroin JS. Continuous intrathecal baclofen for severe spasticity. *Lancet* 1985;ii:125–7.

2. Zahavi A, Geertzen JHB, Middel B et al. Long term effect (more than five years) of intrathecal baclofen on impairment, disability and quality of life in patients with severe spasticity of spinal origin. *J Neurol Neurosurg Psychiatry* 2004;75:1553–7.

Pros and Cons

Pros

- Extremely effective
- Flexible dosing
- No systemic side effects (particularly CNS)
- Consistent treatment
- No drug interactions
- Allows reduction of oral medications

Cons

- Surgical procedure
- Risk of complications
 - Catheter issues, infection
- Potential risks (can be fatal)
 - Overdosing
 - Withdrawal (missed refill apt)
- Limited battery life
- Minimal effect on upper limbs
- May compromise walking
- Body image issues

Case study- pre-trial assessment

Case study- post implant

MDT Management

Nurses

Skin, Bladder, Bowel
Drug education,
Positioning

PT

Standing/ Positioning
Stretching, Exercise
programme, Splinting,
FES

PWS / Carer

Monitor aggravating factors
Exercise / stretching
Monitor drug effectiveness

OT

Adaptations
Wheelchair
Positioning
Splinting
Role

DR

Timing of
assessments
& treatments
Drug prescribing &
evaluating

Acknowledgements

- To all of the patients who consented to their photos and videos being used to help with education and training of health professionals
- To you all for listening....

Any questions?