LOWER CERVICAL/UPPER THORACIC HEMILAMINECTOMY FOR INTRATHECAL CATHETER PLACEMENT IN TREATMENT OF CHILDHOOD DYSTONIA

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Background

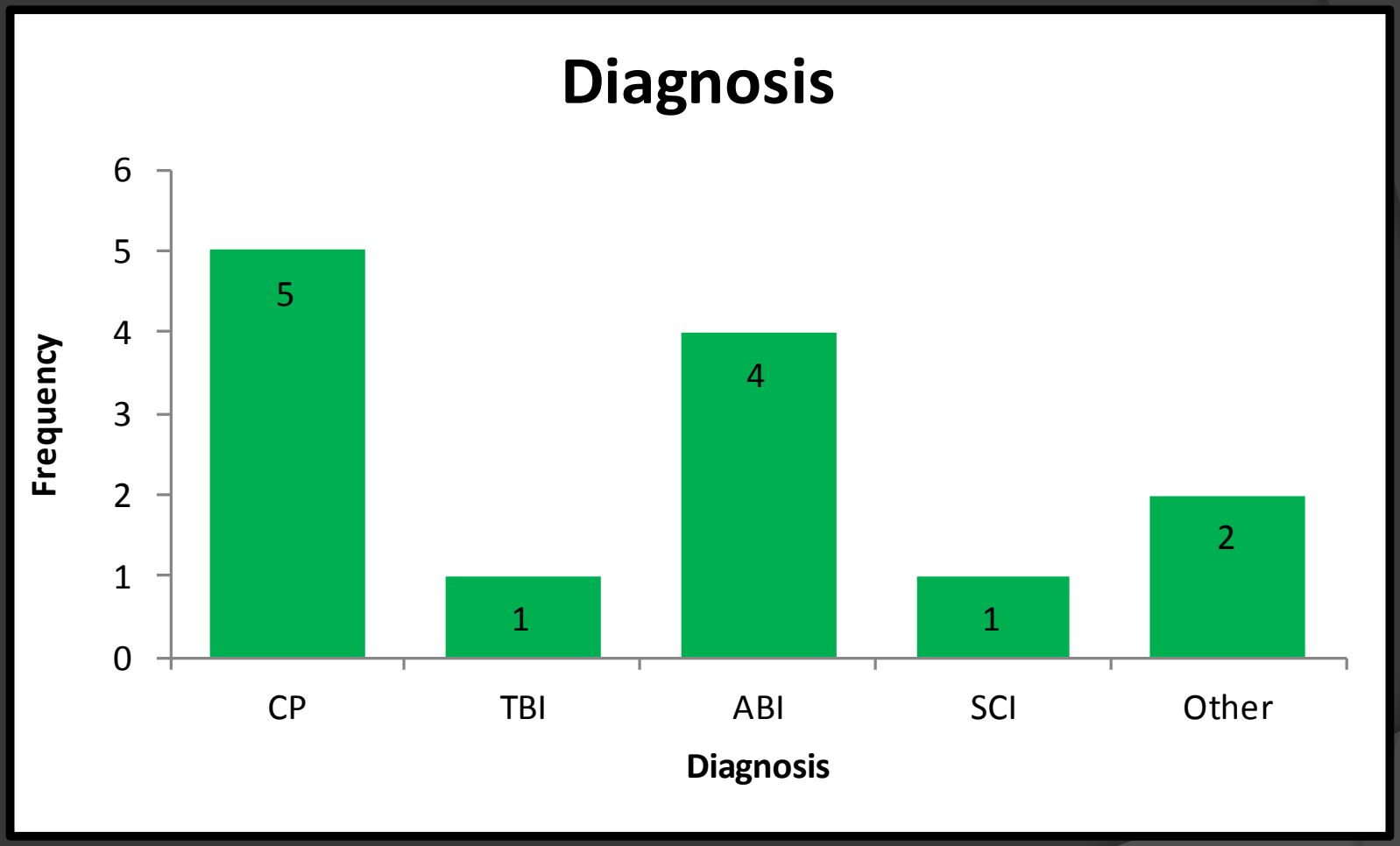
- Intrathecal baclofen (ITB) has become an indispensible tool in the management of medically-refractory childhood spasticity
- Typically, intrathecal space accessed via lumbar route
- More recent studies have reported use in refractory secondary dystonia
- In generalized dystonia, baclofen acts at level of cerebral convexities to inhibit stimulation of the premotor and supplementary motor cortex

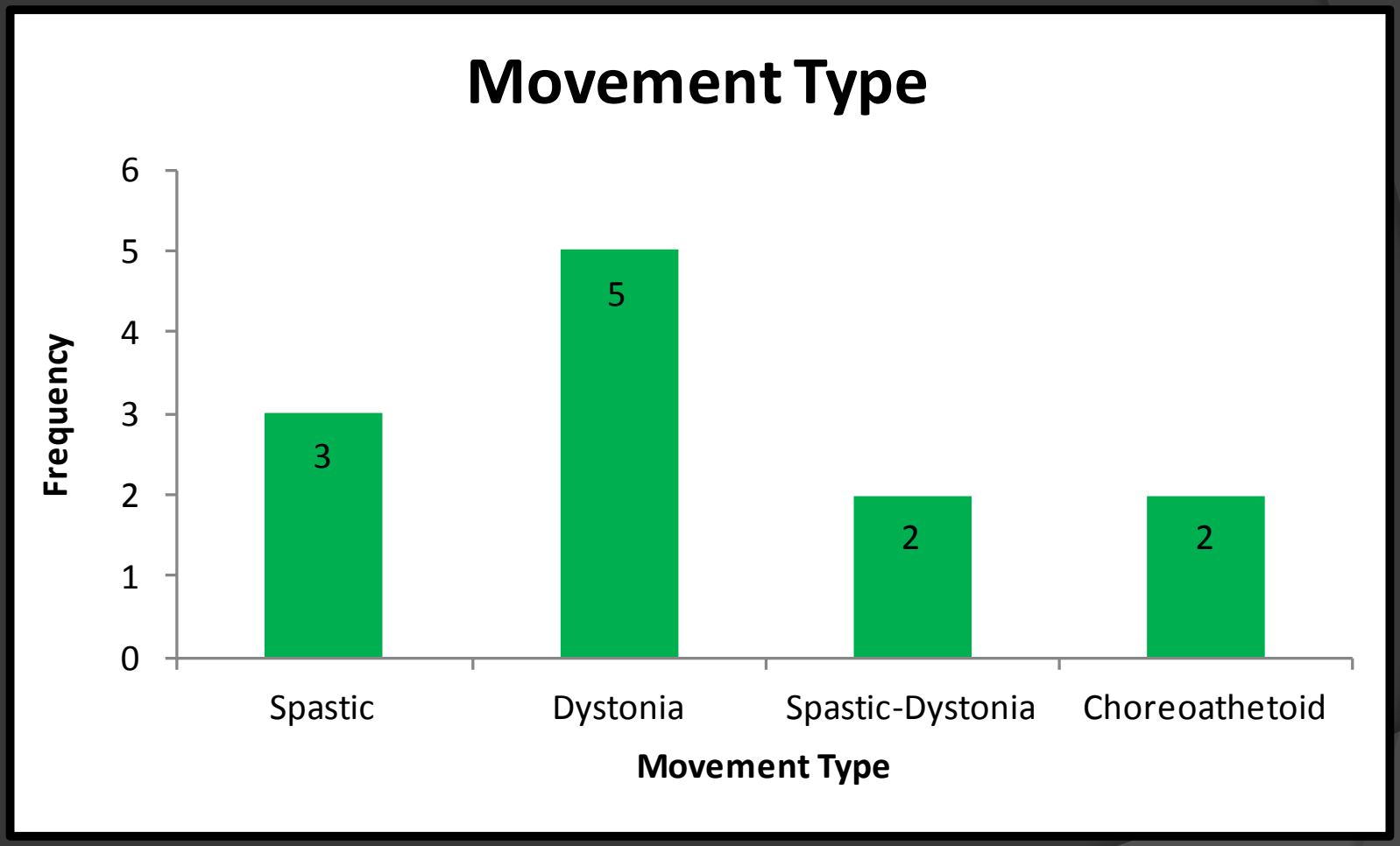
Secondary Dystonia

- requires higher doses of ITB for optimal management
- approximately 50% pts with GMFS IV-V develop scoliosis by teenage years
- poor response to bolus injection trials
- multiday catheter trials provide more accurate picture of baclofen response

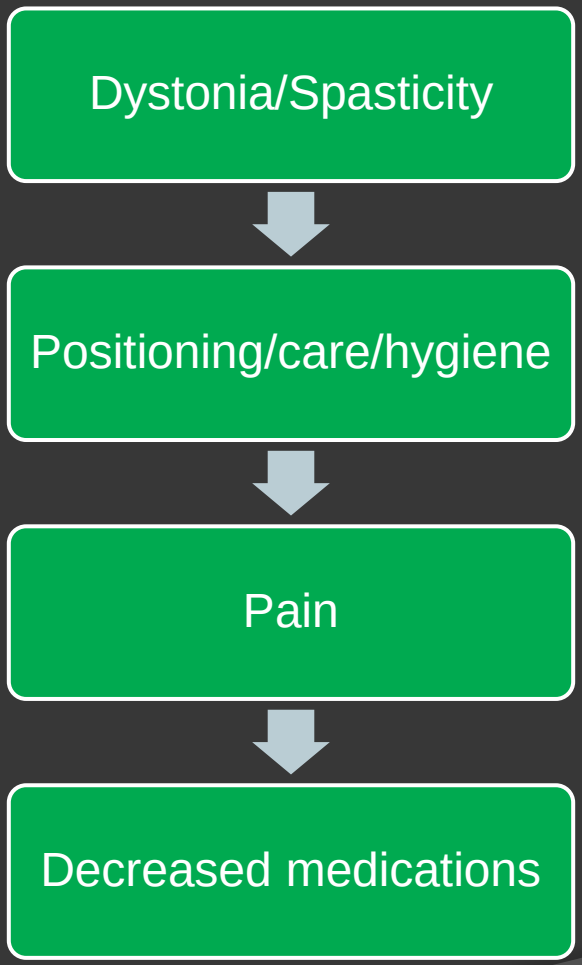
Series

- 12 patients (4-18 yrs) underwent catheter trials
- 5/12 had hemilaminectomy above level of spine fusion
- 7/12 lumbar subarachnoid space accessed and catheter advanced to mid-cervical via fluoroscopy
- dystonia trials: 3-4 days
- Initial dose 4mcg/hr (96mcg/d) 18mcg/hr (432mcg/d)
- most common cause: cerebral palsy, hypoxic-ischemic brain injury


Diagnosis
Frequency
6
5
4
3
2
1
0
5
1
4
1
2
CP
TBI
ABI
SCI
Other
Diagnosis


Movement Type
Frequency
6
5
4
3
2
1
0
3
5
2
2
Spastic
Dystonia
Spastic-Dystonia
Choreoathetoid
Movement Type

Outcome Measures



Barry-Albright Dystonia Score

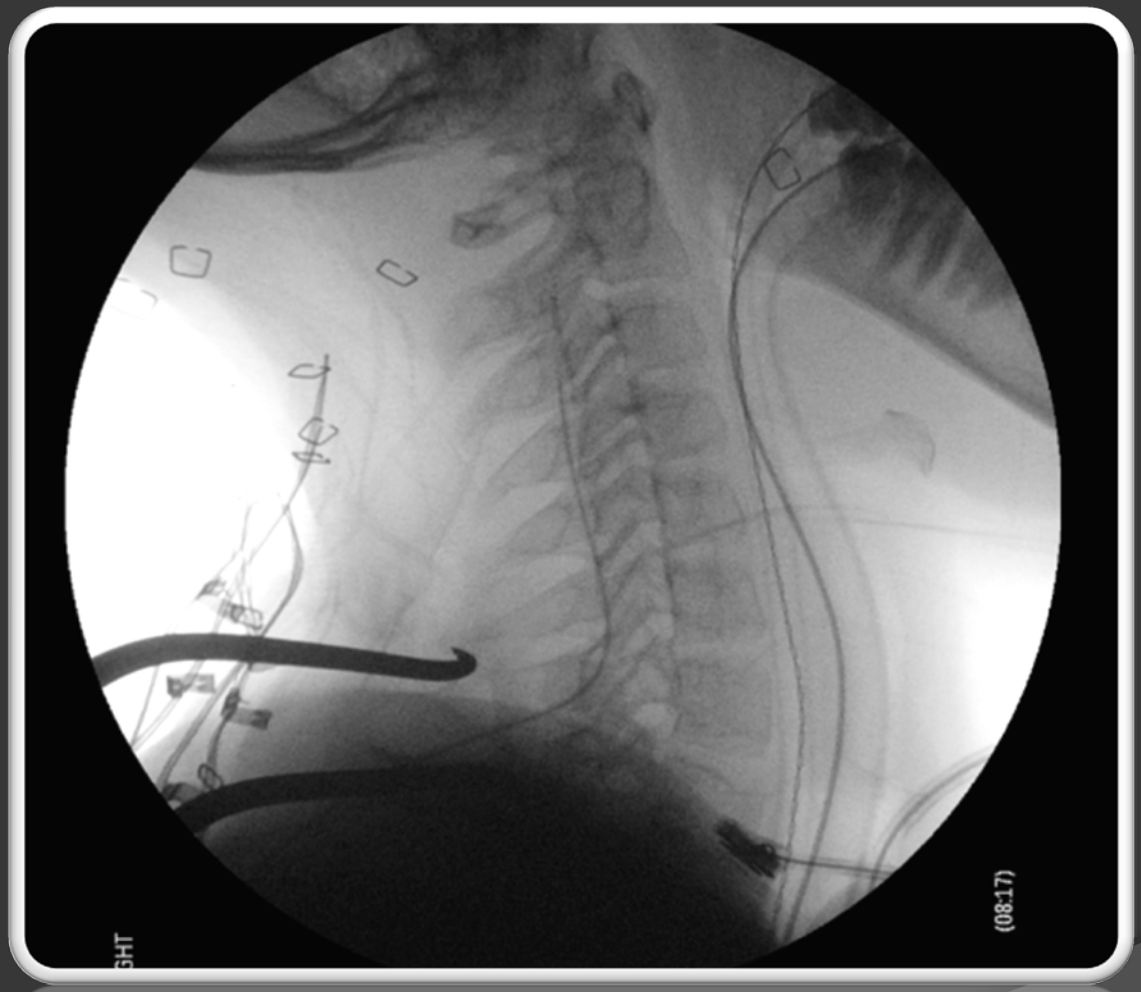
0: absent	• No dystonia
1: slight	• <10%; no interference with lying, sitting, walking
2: mild	• <50%; no interference with lying, sitting, walking
3: moderate	• >50%; interference with lying, sitting, walking
4: severe	• >50%; prevents sitting in wc, standing, walking

Ashworth Spasticity Scale

0	• No increase in muscle tone
1	• Slight increase in tone (catch and release)
2	• More marked increase in tone through most of range of motion
3	• Considerable tone, passive movement difficult
4	• Affected extremities rigid in felxion/extension

Results

- All patients demonstrated improvement in Ashworth spasticity scores and Barry-Albright dystonia scores
- 1 CSF leak
- No other catheter complications
- No infections
- f/u 16-26 mos (2011-2012)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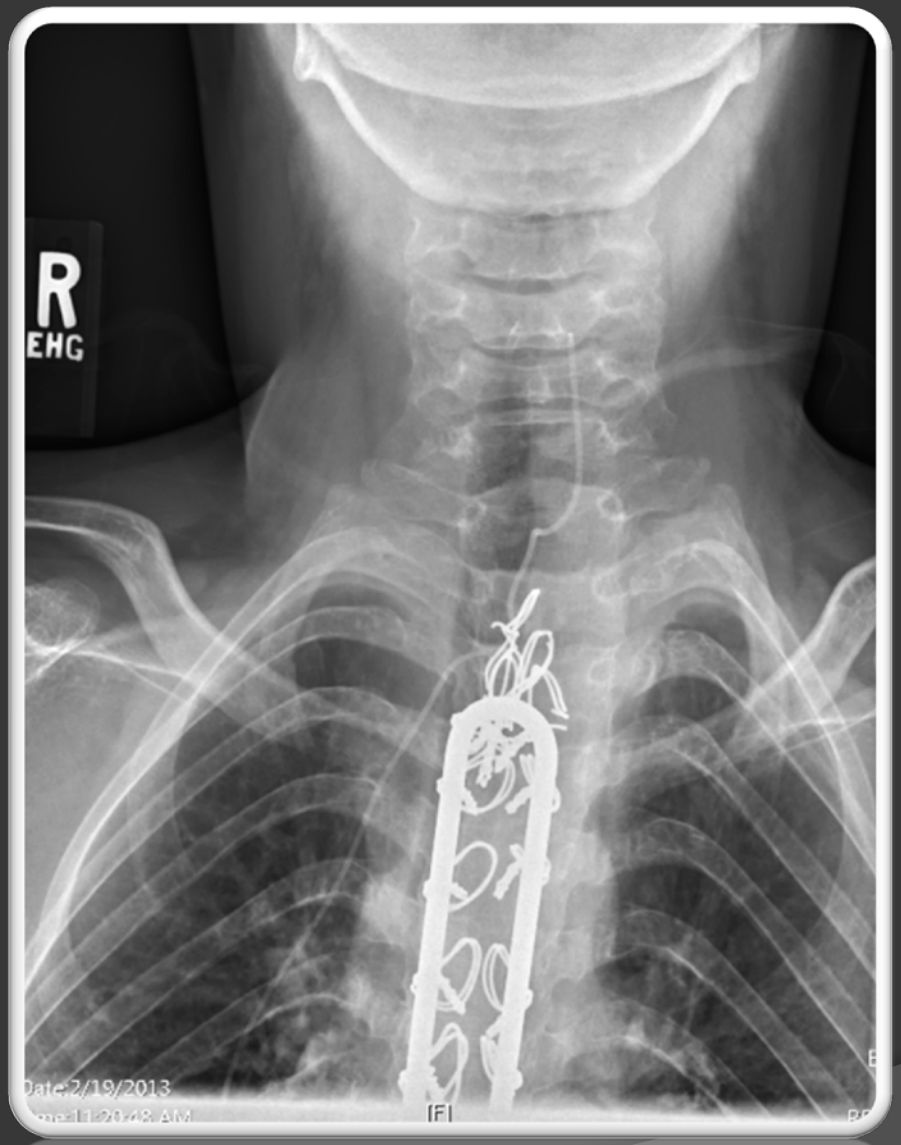
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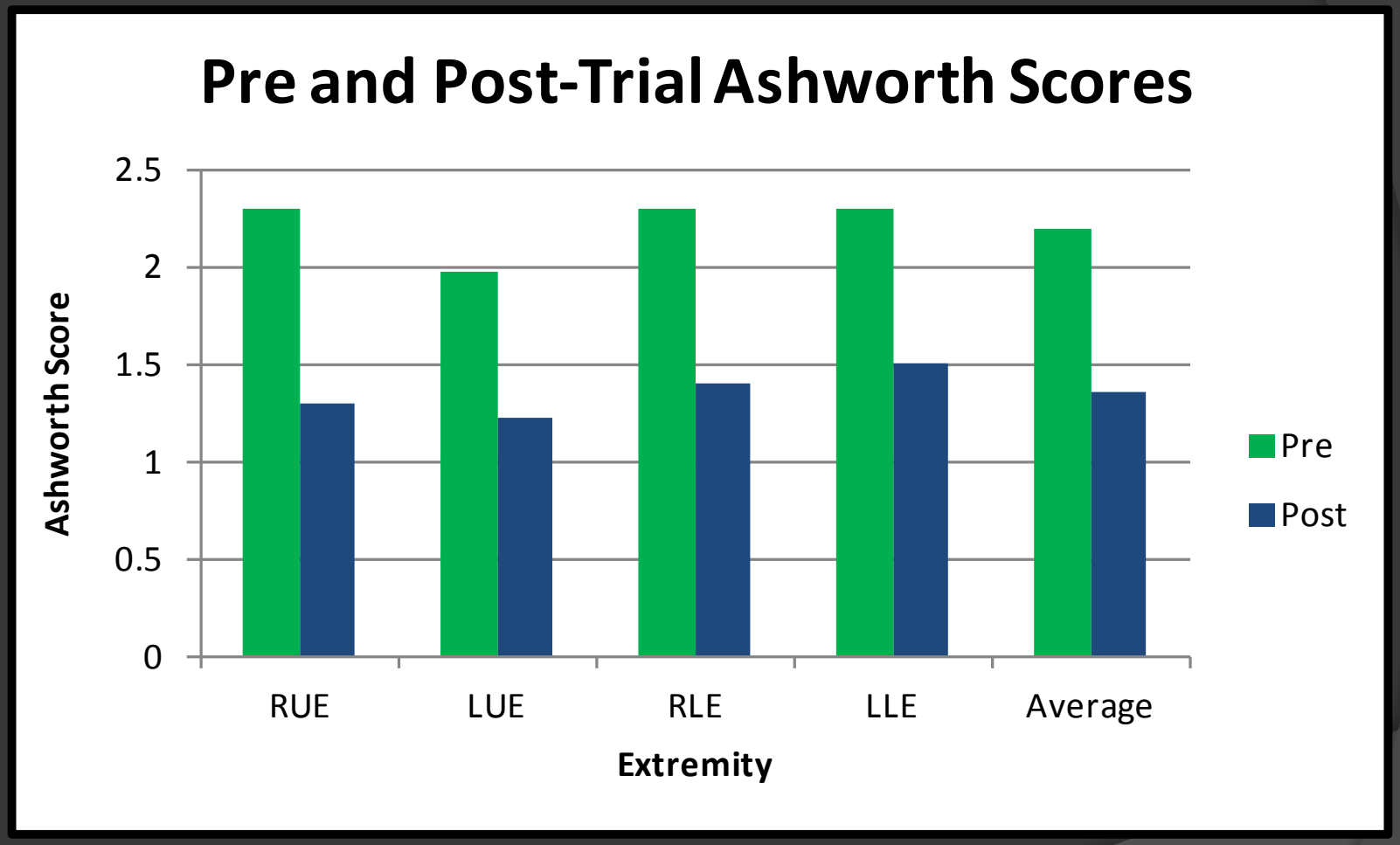
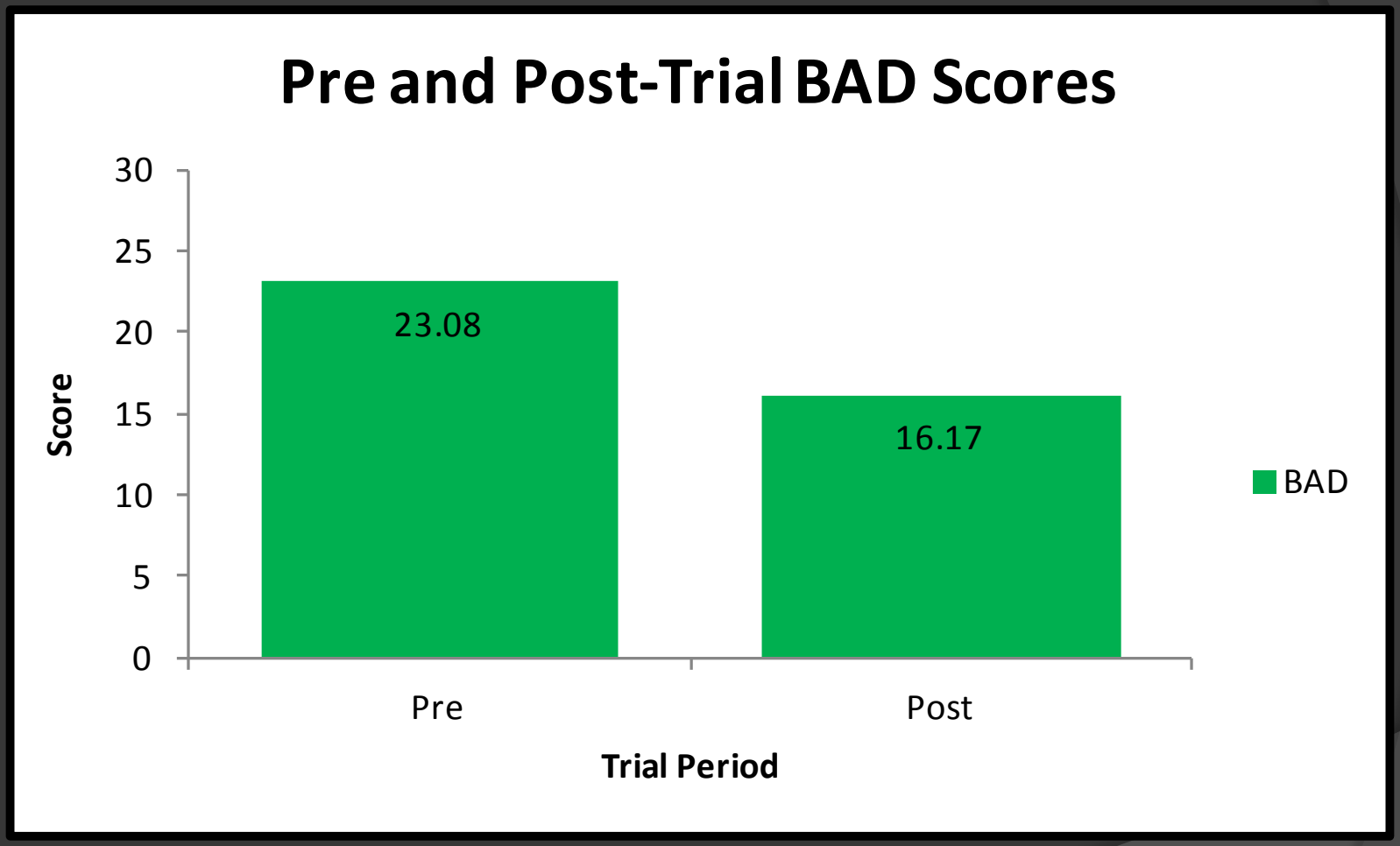
Date:2/19/2013


Pre and Post-Trial Ashworth Scores
Ashworth Score
2.5
2
1.5
1
0.5
0
RUE
LUE
RLE
LLE
Average
Extremity
Pre
Post


Pre and Post-Trial BAD Scores
30
25
20
15
10
5
0
Score
23.08
16.17
Pre
Post
Trial Period
BAD

Conclusion

- Hemilaminectomy provides convenient, effective means of catheter placement in children s/p fusion or with other obstacles for catheter placement (ie arachnoiditis)
- Catheter used for dystonia trial can be safely maintained at time of pump implantation
- Higher catheter entry appears to provide a more generalized effect in dystonic patients
- Intraventricular placement of catheter may be a safe, and possibly more effective alternative