

## INTRODUCTION

- Cerebral palsy can be subdivided into categories based on movement patterns, such as spasticity, dystonia, and a combination of the two.
- Though intrathecal baclofen is frequently utilized as a treatment option, knowledge regarding dosage amounts for this medication in the pediatric population has been limited and inconsistent.
- Thus, this study aims to determine the variability in intrathecal baclofen dosing for patients with spasticity or dystonia, with a secondary aim of identifying any statistical differences in dosing among Gross Motor Function Classification Scores (GMFCS).

## METHODS

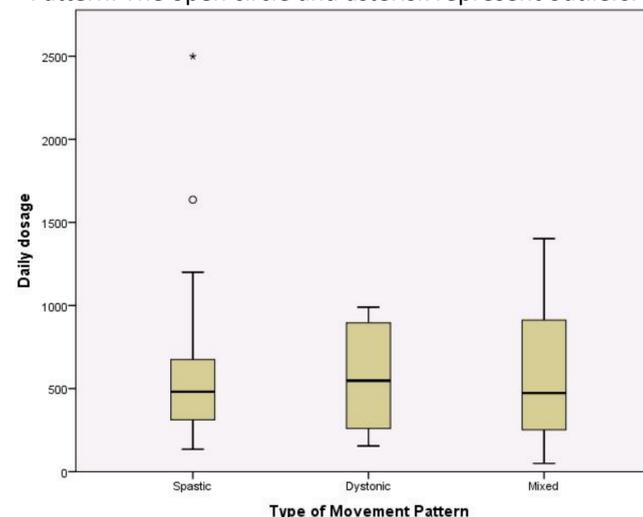
- This study consists of a retrospective chart review of patients with spastic and/or dystonic cerebral palsy.
- 54 patients were identified who were aged from 4 to 21, who received intrathecal baclofen dosing regimens from January 1, 2013 until December 31, 2016 and who have been seen by the Section of Rehabilitation Medicine or Neurology at Children's Mercy Hospital.
- Patient medical records were reviewed for the following:
  - GMFCS score
  - Age
  - weight in kilograms
  - movement pattern
- All statistical analyses were obtained using the software SPSS Version 23.

## RESULTS

Mean daily dosage in the observed population was found to be 597 mcg/day with a standard deviation of +/- 443.6.

ANOVA test showed no statistical difference in daily dosage amounts between 3 movement pattern groups (F=0.031, P=0.97)

**Figure 1.** Mean Dosages Used Based on Movement Pattern. The open circle and asterisk represent outliers.



ANOVA testing also showed no statistical difference in daily dosage amounts related to functional ambulation based on GMFCS levels (F=1.656, P=0.188).

**Table 1.** Mean Dosages Used Based on GMFCS levels with standard deviations.

GMFCS	Mean	Standard Deviation
3	830.9	± 498.8
4	379.45	± 226.468
5	589.04	± 518.4
Other diagnoses	589.03	± 287.123

## SUMMARY

- Unlike many other types of medications, intrathecal baclofen does not have weight-based dosing for pediatric prescribing.
- Additionally, total daily effective dose is not consistent across patients experiencing different movement patterns, however there also appears to be no statistical difference in mean dosages among the different types of movement patterns.
- A limitation of this study exists in the small sample size of 54.
- We will continue investigating preferred dosing regimens among types of movements patterns as well as among different GMFCS levels.

## CONCLUSION

- Then lack of statistical difference in daily dosage among the different groups shows that the dosing of intrathecal baclofen in pediatric patients is
  - Independent of their ambulation ability or movement pattern but rather based on maximal clinical benefit of the intrathecal baclofen.

## REFERENCES

1. Matthews D. Management of spasticity in children with cerebral palsy. *Acta Orthop Traumatol Turc.* 2009; 43:81/6.
2. Gerszten P, et al. Intrathecal baclofen infusion and subsequent orthopedic surgery in patients with spastic cerebral palsy. *J Neurosurgery.* 1998; 88: 1009/13.
3. Oleszek J, et al. Cerebral Palsy. IN: *Physical Medicine and Rehabilitation.* 4<sup>th</sup> Edition. Elsevier Saunders. Philadelphia. 2011: 1253/73.
4. McMahon M, et al. Cerebral Palsy. IN: *Pediatric Rehabilitation Principles and Practices.* 4<sup>th</sup> Edition. Demos Medical: New York. 2010: p 183/4.