LONG TERM OUTCOME TEN YEARS AFTER SELECTIVE DORSAL RHIZOTOMY IN CHILDREN WITH CEREBRAL PALSY

Eva Åström, MD, PhD, Kristina Löwing, PT, Msc., Dan Jacobson, Medical Student, Kristina Tedroff, MD PhD.
Department of Women’s and Children’s Health, Karolinska Institutet, Astrid Lindgren Children’s Hospital, Stockholm, Sweden

Does loss of spasticity matter?
We believe that this study provides additional evidence for the answer.
- No, not for benefits in long term gross motor function and not to prevent contractures.

Traditionally a large part of treatment in CP have focused on spasticity reduction despite growing evidence questioning the role of increased muscle tone in contractures development and gross motor function impairment. Several recent studies in young persons with CP show that they experience problems in a range of areas, mainly in mobility, self-care, nutrition, employment, and socialization (1,2). The things that are important for the child as well as the young adult is to attain life skills that can permit them to take part in society and this is probably where treatment focus should be.

Design
A prospective cohort study set to evaluate the long-term effects (10 years) following selective dorsal rhizotomy (SDR) in children with CP focusing on the effect on spasticity, joint range of motion, gross motor function and also to assess the need for orthopedic surgery after SDR.

Participants and Setting
All children undergoing SDR at the Karolinska Hospital, a tertiary referral center, during 1993–1997 were included in the study. All (n = 19) had bilateral CP and the mean age was 4.6 years (SD=1.6).

Method
We included assessments prior to surgery, and at 18 months, 3 years and 10 years postoperatively. Assessments included neurology assessment, joint range of motion (ROM) in lower extremities, the modified Ashworth scale for spasticity, the Gross Motor Function Measure (GMFM-88) and for ambulatory status the Illinois-St Louis (or Wilson) gait scale was used. In 2009 a retrospective chart review was added to the prospective follow-up that included orthopaedic surgery performed during a ten year period after SDR.

Orthopedic surgeries
Within 10 years post SDR 16/19 patients had undergone OS. Mean amount of procedures was 3 (SD= 2.8) median 2 (range 0-10). Surgery took place after an average of 5 years (SD=2.5) after the SDR.

Conclusions/Significance:
Ten years post SDR the functional gains assessed by ambulatory function and GMFM-88 were only small and a decline was seen in GMFM-88 compared to 3 years after SDR. The spasticity reducing effect of surgery was still apparent after 10 years, even if a slight recurrence of spasticity was present at the ankle and knee level. Despite greatly reduced spasticity after SDR these children in most cases required orthopedic surgery, to maintain joint motility. This suggests that contractures development in CP is not only mediated by spasticity and that the spasticity reduction did not seem to have any measurable longitudinal functional benefits in our group of children.


Handouts on tables and data are available for detailed viewing.