Long-Term Outcomes Following Hip Reconstructive Surgery in Children with Cerebral Palsy

Reggie Hamdy1,2, MD; Noémi Dahan-Oliel1,2, PhD, OT; Souad Rhalmi3, MSc; Kathleen Montpetit1, MSc, OT; Alexandra de Almeida Vicente1, MSc, RN; Sylvie Thibault3, BSc; Dan Epstein1, MD

1Shriners Hospitals for Children-Canada 2Faculty of Medicine, McGill University 3Centre de réadaptation Marie-Enfant

Background

- Hip deformities affect both ambulating and non-ambulating children with cerebral palsy (CP) causing pain, hip rigidity and instability
- Surgical management to improve daily physical functioning is widely used
- Yet few studies have investigated functional outcomes and satisfaction following hip reconstructive surgery
- Evaluating these outcomes is important to identify the needs of these children and their families, plan and implement effective intervention strategies, and assess whether the surgical procedures used provided the anticipated effects.

Objectives

1. Evaluate daily function of children with CP following hip reconstructive surgery
2. Determine parents’ perception of change following the surgical intervention
3. Assess the radiological outcomes of the surgery

Methods

Design

- Intervention study using a retrospective cohort

Participants

- 3 to 18 years of age
- Diagnosis of CP
- Initial reconstructive hip surgery between 1993 and 2013

Recruitment

- Charts reviewed
- Participants included in the functional outcome analysis (n = 42)
- Participants included in radiological analysis (n = 24, 27 hips)

Procedures

1. Caregivers of children with GMFCS levels IV-V completed the Care and Comfort Hypertonicity Questionnaire
2. All caregivers were asked to complete the Lower Extremity Parent Rated Change Form
3. The following indices were compared pre-operative to the latest follow-up:
   - Migration percentage: located (≥30%) versus subluxed
   - Acetabular index/Sharp’s angle: well-covered (20° / 40°) versus dysplastic
   - Integrity of the Shenton’s line: intact versus not intact

Results

Participant Demographics

- GMFCS Classification

- Initial Procedure, n = 60

- Mean Age at 1st surgery 9.75 (3.83) [2.58 18.08]
- Number of Hips operated 60

- GMFCS Classification

- Mean follow up period 8.2 (4.08) [1.83 17.5]

- Care and Comfort Hypertonicity Questionnaire

- Female 20 (45%)
- Male 24 (55%)

- Acetabular/Sharps Index n=27 hips

- Acetabular Coverage

- Migration Index n=26 hips

- Hip Joint Congruency

- Shenton’s Line n=27 hips

- Surgical Outcomes of the 60 Hips

Future Steps

- Further analysis should explore whether VDRO+Dega/other has a better outcome than VDRO alone.

Summary of findings

- At least follow-up, the majority of caregivers report their child as not having pain/discomfort during position changes, activities, and sleep.
- Nevertheless, the burden of care on families remains significant with respect to daily tasks, including diaper change, bathing and transfers.
- Most caregivers reported a better or similar status in their child’s health, leg function, activity level and pain following reconstructive hip surgery.
- Three quarters of the caregivers were satisfied with the overall changes since the surgery.
- Hip joint congruency improved in 81% and 74% as measured by migration index and Shenton’s line, respectively.
- Acetabular coverage improved in 56% as measured by Acetabular/Sharps angle.

Contact information

rhamdy@shriners.mcgill.ca