Pain Reduction In Non-Verbal Children With Cerebral Palsy Following Minimally Invasive Surgery And Ethanol Injections

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INTRODUCTION: This study's purpose is to determine pain relief following minimally invasive interventions with myofascial lengthening, tenotomies, ethanol nerve blocks and ethanol hip injections in children with cerebral palsy (CP) and communication difficulties.

METHODS: The study comprised 50 non-verbal patients with CP who underwent minimally invasive surgery between May 2010 and September 2012. Age ranged from 2 to 19 years (mean 9.8 years). All children had few or no words. The Paediatric Pain Profile (PPP) was used to assess the child’s pain, which was provided by the child’s caregiver before and at least 1-year after surgery. The PPP is a validated 20-item questionnaire evaluating child behaviors (e.g., frequency of crying/moaning/groaning/screaming, frequency of disturbed sleep). Scores 14 or higher were considered indicative of significant pain. Analysis of cohorts was based on presence of significant pain preoperatively, severity of hip morphology and specific procedures performed.

RESULTS: Thirty-five of 50 (70%) children had lower pain scores 1-year following surgery. Mean pain score was 18.3 preoperatively and 13.4 postoperatively. 25 of 31 children with significant pain (81%) showed improved pain scores, from 24.5 to 16.2. Eighteen of 20 questions showed a decrease in pain scores. Ten of 17 children with very poor hips (Acetabular Index of 30 and higher or Migration
Percentage of 80 and higher) had intra-articular ethanol hip joint injections, with pain improvement in 9 patients. The Fisher Exact test showed correlation between hip injections and pain improvement.

DISCUSSION AND CONCLUSION: Minimally invasive techniques can decrease pain at intermediate follow-up in non-verbal children with cerebral palsy even in those with significant pain. Children with very poor hips showed no statistical decrease in pain scores except those patients who received hip injections. This suggests hip injections are crucial in controlling pain in children with high acetabular indexes and migration percentages.