Therapy and Dyspraxia in Children with ASD

Ryan Barry, Kayla Limbert, and Victoria Loving

Introduction/Background

- Developmental Dyspraxia- defined as the inability to acquire the ability to perform appropriate complex motor actions (1)
- Children w/ ASD who present w/ dyspraxia show deficits in all categories (2)
- Children w/ ASD consistently show motor deficits affecting muscle tone, gross/fine motor skills, gait patterns, balance, motor planning, and coordination (3)

PICO Question

- Does early (0-3 y/o vs children already in school) entry in physical therapy programs (and other therapeutic programs) with children with autism spectrum disorder affect the severity of dyspraxia?

Methods

- Pubmed - autism, children and dyspraxia: 10 Results
  - Filters: Last 5 years, Free Full Text, human subjects.
- Pubmed - children autism physical therapy: 39 results.
  - Filters: Last 5 years, Free Full Text, human subjects.
- Pubmed - early intervention autism: 122 Results
  - Last 5 years, Free Full Text, Human subjects, Journal Article
Research Synthesized

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Results

- Intensive PT intervention might enhance therapeutic outcomes for ASD population and provide knowledge on PT potential for children with ASD.
- Preschool aged children with ASD, treated with low intensity ESDM-inspired (early) intervention is feasible and effective in improving cognitive and language domains and decreasing autistic symptoms in early dx.

PACT Study

- Preschool Autism Communication Trial (PACT)
  – One year developmentally focused social communication program for young children that consists of 12 therapy sessions (2 hr long) over 6 months, followed by monthly support for another 6 months.
- Parents agreed to 20-30 minutes per day of planned practice activities with the child.
- This study aimed to follow up this study.

PACT Outcomes

- Main outcomes measures were:
  - Comparative Severity Score (CSS) from the Autism Diagnostic Observation Schedule (ADOS) - low scores indicate less severe autism symptoms
  - Dyadic Communication Assessment Measure (DCMA)
  - Expressive-Receptive Language Composite (ERLC)
PACT - Results

• Showed decrease in repetitive and restrictive behaviors according to ADOS-CSS.
• Improved social interactions based on non-blinded parent & blinded teacher-reported RBQ and SCQ.
• Significantly improve DCMA scores with child initiation at follow up.
• Showed no difference in ERLC scores.

Dyspraxia Comparison Study

• School aged children (8-13 y/o) with ASD, ADHD, or were typically developed (TD) were compared using multiple outcome measures 6.
  • Postural Knowledge Test (PKF)
  • Physical and Neurological Exam for Subtle Signs (PANESS) with or without Total Timed Repetitive Movements (TTRM)
  • Praxis - performance of skilled gestures to command
Cohen’s d ES: 0.2 Value = 58% of population is above mean value.
Group DCMA of child initiations at FU = 0.29
Ryan Barry, 11/21/2016

ASD children were further divided into high-functioning autism (HFA) and Aspergers (Asp). No difference was noted between HFA and Asp with any test. ASD and ADHD children were significantly slower on PANESS and PANESS + TTRM compared to TD. ADHD and ASD had no significant differences on PANESS. Praxis and PFK showed ASD lower than TD. No difference was found compared to ADHD and and TD.
Ryan Barry, 11/21/2016
Discussion

- Children with autism can benefit from PT services- early diagnosis will lead to more opportunity to participate in early therapeutic intervention and decrease severity of dyspraxia.\(^3,4\)

Areas for Future Research

- More physical therapy involvement for children with ASD.\(^3\)
- PACT and other communication based therapies to improve long-term social symptom reduction and trajectory.
- Need for early detection of children at risk of autism and early child care program for children with ASD.\(^4\)

References