Developmental Coordination Disorder (DCD), general coordination and fine motor deficits are prevalent in children with Rolandic epilepsy

Stuart D. W. Smith, Anna B. Smith and Deb K. Pal

Introduction

• Cognitive problems in Rolandic epilepsy (RE) may involve speech, language and literacy (Pal et al., 2010, Smith et al., 2015, Vega et al., 2015).

• These problems are prevalent within families of children with RE and may represent an endophenotype.

• New evidence suggests dyspraxia or developmental coordination disorder (DCD) may also be present in children with RE (Brindley et al., 2016, Kirby et al, 2017, Currie et al 2017).

• Previously, at the International Epilepsy Congress, we presented data indicating that the prevalence of DCD in children with RE is larger than siblings and healthy controls.

• Here we replicate the analysis with an expanded RE group.

• Furthermore, we investigated whether individuals without an indication for DCD had deficits.

Goals

1. Use the DCDQ’07 to calculate the prevalence of DCD cases in children with RE, their siblings and controls.

2. Identify the key features in motor deficits from subcores in groups.

3. See if motor deficits exist in non-cases.

Methods

• Age: 4-17, IQ>80.

• Three groups: RE N=40, Sibs N=32 and Con N=21

• 55% of RE using AEDs

• % male: RE 60, Sibs 37.5 and Con 58

• Chi-squared testing

• MANOVA of subscores: Control during movement, fine motor and coordination. Sex as a covariate.

Indication for DCD

- 37.5% of children with RE had an indication for DCD which was larger than the controls 12.5% (χ²=3.57, p=.058) and siblings 11.76% (χ²=3.72, p=.0353).

- No significant difference between controls and siblings (χ²=.0335, p=.851).

Increased risk of DCD in RE

- 3.00 x RE vs Sib

- 2.63 x RE vs Con

- 0.88 x Sib vs Con

Individuals without an indication for DCD

- MANOVA analysis was not significant, Pillai’s Trace F=1.62 p=.146.

- Being female was a significant covariate for control during movement (F=5.451, p=.023).

- Interestingly, a post-hoc contrast ANOVA found significance for general coordination (p=.015) and fine motor (p=.039) between children with RE and healthy controls.

Conclusions

- These data suggest an increased risk of DCD in children with RE compared to healthy controls and siblings.

- As a group, in children with RE, there appears to be a specific deficit in general coordination and fine motor skills.

- Interestingly, in children with RE, without an indication for DCD there is a similar deficit.

- These data suggest that in children with RE, motor problems are apparent but not universal.

- Further investigation is required to identify why some children with RE are affected with DCD.

- Possible factors could be age of seizure onset, seizure frequency or trauma at birth.

References:


