Developmental coordination disorder in children with Rolandic epilepsy and their siblings

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

KING'S College LONDON

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 motor problems or developmental coordination disorder (DCD) may also be present in children with RE (Brindley et al., 2016, Kirby et al 2017).
- It is unknown whether DCD is detectable in siblings of children with RE.

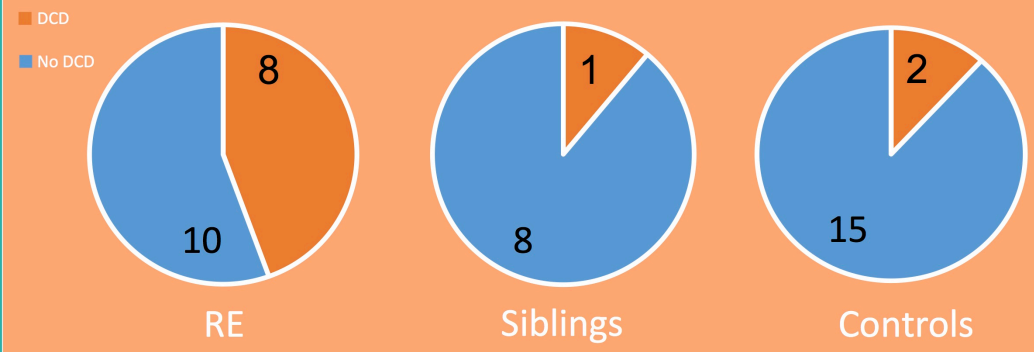
Methods

- Age 7-17, IQ>80
- RE N=18, Sibs N=9 and Con N=17
- % male: RE 66, Sibs 22 and Con 58
- Chi-squared testing
- MANOVA analysis of subscores: Control during movement, fine motor and coordination.

Goals

1. Using the DCDQ'07 to detect DCD symptoms in children with RE, their siblings and controls.
2. Identify the key problems in motor abilities from subscores.

Overall scores



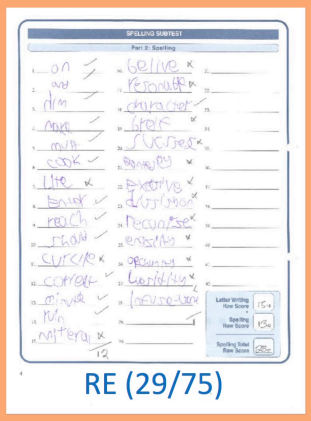
- **Forty-four percent** of children with RE had an indication of DCD.
- This was larger than the controls (χ^2=4.58, p= .032) and siblings (χ^2=3, p= .08).

Subscores

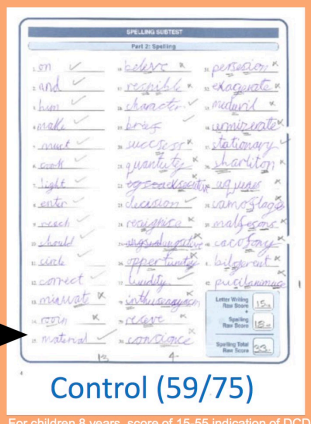
MANOVA analysis of subsection scores was not significant (F=1.8, df=6, 80, p=.109)

However, post hoc, Bonferroni testing between RE and controls was significant for fine motor control (p=.01) and coordination (p=.04).

Hand writing examples of 8 year old children (DCDQ scores)

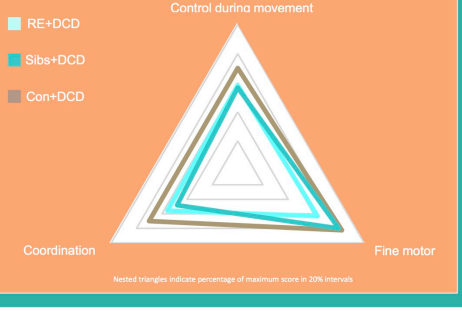

RE (29/75)


Sibling (75/75)


Control (59/75)

For children 8 years, score of 15-55 indication of DCD. 56-75 probably not DCD

Key problems



Conclusions

- There is a high prevalence for the indication of DCD in children with RE compared to controls.
- There appears to be an apparent association with coordination and fine motor skills.
- Indication of DCDQ was less prevalent in siblings.
- Further investigation is needed to see if DCD is related to the RE seizure disorder rather than a component of the endophenotype.

References:

Brindley, Lisa M., et al. "Ipsilateral cortical motor desynchronisation is reduced in Benign Epilepsy with Centro-Temporal Spikes." Clinical Neurophysiology 127.2 (2016): 1147-1156.

Kirby, Amanda, et al. "Benign childhood epilepsy with centrotemporal spikes (BECTS) and developmental co-ordination disorder." Epilepsy & Behavior 72 (2017): 122-126.

Pal, Deb K., et al. "Idiopathic focal epilepsies: the "lost tribe"." Epileptic Disorders 18.3 (2016): 252-288.

Smith, Anna B., et al. "A neurocognitive endophenotype associated with rolandic epilepsy." Epilepsia 53.4 (2012): 705-711.

Vega, Yaiza Hernández, et al. "Risk factors for reading disability in families with rolandic epilepsy." Epilepsy & Behavior 53 (2015): 174-179.

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