FUNCTIONAL NEUROLOGICAL MOVEMENT DISORDERS-APRIL 2021
SE THAMES PAED NETWORK

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“It’s not the destination
IT’S THE JOURNEY.”
RALPH WALDO EMERSON
AIMS

- To discuss phenomenology and assessment of functional movement disorders
- Top tips on disclosing diagnosis
- Discuss Novel CBT /attentional approaches to Management
THIS IS A NEUROLOGICAL DIAGNOSIS

There are many catches

FNMD is a subset of wider Functional Symptoms like Pain, Abdominal Complaints, Fatigue etc

NEED A Positive Neurological Diagnosis

Current wait for diagnosis is approximately 20 months. (Canavese 2012)

Need to know about the differentials
IMPACT ON CHILDREN

- Age onset: 11-14 years
- Girls > boys
- Mental health diagnosis (50-75%)
- Comorbid pain, fatigue, eating difficulties

(UK school children 2009 37% frequent physical symptoms)

(Gusmão, et al., 2014; Ramesh, 2012; Schwingenschuh, et al., 2008)
FUNCTIONAL NEUROLOGICAL MOVEMENT DISORDERS (FNMD)

"A movement disorder that is significantly altered by distraction or non-physiological manoeuvres (including dramatic placebo response) and that is clinically incongruent with movement disorders known to be caused by neurological disease”.

(Edwards & Bhatia, 2012).

UK & Ireland Surveillance Study

<table>
<thead>
<tr>
<th>Core Symptoms</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor weakness</td>
<td>63%</td>
</tr>
<tr>
<td>Abnormal movements</td>
<td>43%</td>
</tr>
<tr>
<td>Non-epileptic seizures</td>
<td>40%</td>
</tr>
<tr>
<td>Anaesthesia/paraesthesia</td>
<td>32%</td>
</tr>
<tr>
<td>Diminished consciousness</td>
<td>29%</td>
</tr>
<tr>
<td>Visual loss</td>
<td>23%</td>
</tr>
<tr>
<td>Limb paralysis</td>
<td>22%</td>
</tr>
<tr>
<td>Loss of speech</td>
<td>19%</td>
</tr>
<tr>
<td>Hearing loss</td>
<td>8%</td>
</tr>
</tbody>
</table>

Ani, et al., 2013, BJPsych, 202, 413-418
IMPORTANCE OF EARLY DIAGNOSIS

FNS associated with:
- Reduced quality of life
- Emotional disturbances
- Lost educational opportunities
- Social isolation
- Increased family burden

Better outcomes for:
- Younger patients
- Shorter duration of symptoms
- Healthy premorbid functioning
- Identifiable stressor

(Gusmão, et al., 2014; Ramesh, 2012)

(Marjama, et al., 1995; Schwingenschuh, et al., 2008)
USEFUL CLINICAL FEATURES

- Abrupt onset
- Inconsistent symptom presentation
- Distraction
- Suggestibility
- La belle indifference
- Fatigue/exhaustion
- Hoover Sign
- Motor inconsistency-getting dressed/toileting etc but in wheelchair when go out?

→ Diagnosis on the basis of positive clinical features
POSITIVE SIGNS IN NEURO EXAM

- ENTRAINMENT
- FIXED POSTURE/DYSTONIA
- DRAGGING GAIT
- DISTRACTIBILITY
- VARIABILITY
- KNEE BUCKLING (beware some chorea so this)
- Fall towards support
Taking responsibility and authority away from the scanner and back into the clinic room.
“The problem is that your brain is not able to control or access your body normally.”
A clear demonstration of the theoretical possibility of getting better.

“Did you notice how your tremor paused briefly when you were tapping with the other hand?”

•

“This shows me that the basic wiring of your nervous system is ok, that it can work.”
**FNS: ROLE OF ATTENTION**

• A reduction in symptoms is found when attention is directed away from the affected limb (Edwards & Bhatia, 2012).

• Poorer performance attending to internal physiological information and emotional states (Ricciardi et al., 2015; Demartini et al., 2014).

→ Changes in attentional processing styles and maladaptive symptom beliefs

(Mark Edwards, et al, 2012, Brain, 135)
PSYCHOLOGICAL TREATMENT COMPONENTS

• Psychoeducation (FNMD, anxiety, co-morbidities)
• Normalise somatic symptoms and offer alternative explanations
• Reduce interoception with external attention focusing strategies
• Identify advantages/disadvantages of FNMD and ‘new normal’
• Change maladaptive/safety behaviours (e.g. use of aids)
• Challenge unhelpful thoughts/illness beliefs
• Manage co-morbidities (anxiety/cognitive/neurodevelopmental)
• Work with child/parents/school etc.

➢ Rewards and praise!
EXTERNAL ATTENTION STRATEGIES

Role of attention on sensory processing
- Focus on hand/focus on talking
- Floor pushing up through feet
- Shock ball game

Training of auditory attention
- Listening to sounds in the environment
- Single (near, middle, far), switching, divided

Other external attention strategies
- Auditory – listing to sounds in music, hum tunes
- Visual – colours, shapes, textures
- Tactile – rough/smooth/soft

Focussing attention on external stimuli (exteroception)
Shifting attention away from internal sensations (interoception)
Cognitive processing load
**METHOD**

**Patients**
18 pts; 9f:9m; Mean age=13 yrs (10-18 yrs)
Tics = 9, Stereotypies = 1, ASD = 3, ADHD = 1, Social anxiety = 6, OCD/OCB = 2, Mood = 1
Non school attendance =7

**MDT Stepped Care Approach**
- MDT New patient assessment and Diagnosis
- Nurse liaison with school
- Individual therapy by Clinical Psychologists
- Psychiatric review (as needed)

**Evaluation**
Children’s Global Assessment Scale (CGAS)

**Table 1: Functional symptoms**

<table>
<thead>
<tr>
<th>Functional Symptoms</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tic-like attacks</td>
<td>8</td>
</tr>
<tr>
<td>Non-walking</td>
<td>7</td>
</tr>
<tr>
<td>Tremors</td>
<td>3</td>
</tr>
<tr>
<td>Fixed flexion</td>
<td>2</td>
</tr>
<tr>
<td>Chronic pain</td>
<td>1</td>
</tr>
<tr>
<td>Visual disturbances</td>
<td>1</td>
</tr>
<tr>
<td>Non-epileptic attacks</td>
<td>1</td>
</tr>
</tbody>
</table>
RESULTS

Ave. number sessions = 11 (1 to 17 sessions)

All cases clinical improvement in FNMD
N = 14 complete resolution of symptoms
N = 3 re-presented new FNS
N=4 undiagnosed cognitive difficulties

CGAS mean pre tx score = 38 (range 31-62)
SERIOUS PROBLEMS

CGAS mean post tx score = 72 (range 60-88)
DOING ALL RIGHT
TIC-LIKE ATTACKS: ARE A FORM OF FUNCTIONAL NEUROLOGICAL DISORDER

• Movements seen in tic attacks include both tics and whole body writhing that is inconsistent with tics.

• Tic-attacks are a mixture of severe bout of typical tics combined with functional anxiety driven movements mostly full body writing movements – better described as attack of tic-like movements and are common in children with tics.

• A ‘panic attack’ in an individual with tics and co-morbid anxiety.
These patients report that they gain peer support, recognition and a sense of belonging from this exposure. Function as secondary gain.

Potential for ‘contagion’ and the reinforcement.
#tourettes: 2.4 billion views
#ticattack: 37 million views
#tourettesawareness: 858 million views

Tourette alphabet challenge
Tourette jenga challenge
Tourette egg challenge
Standing still challenge
Tourette cupwater challenge
Tourette baking challenge

TikTok Tourettes

A voluntary movement disorder afflicting young girls worldwide that causes repetitive, seemingly uncontrollable upper body twitching upon entering a room. May resemble choreographed dancing to an untrained eye, but such motor tics are purposeless, usually nonrhythmic and always annoying.

What’s wrong with that girl in grocery aisle #4?

“Oh she just has TikTok Tourettes Syndrome. She’s fine.”

by Dot_Connector November 21, 2020
The social media star who has revealed her life of seizures and tics to millions of fans

"One person who followed me on social media said they wished they had tics because it looked like fun. It is not," she said.

One tic episode left her in agony but went viral on TikTok.

Sadly, Evie's seizures and tics have worsened during the coronavirus lockdown.
Novel Psychological Formulation and Treatment of “Tic Attacks” in Tourette Syndrome

Sally Robinson* and Barney Medfly‡

*Tic and Neuromotor Development: Attentional Synopsis (TNDAC), Children’s Neurobehavioral Centre, Evelina London Children's Hospital, London, UK; ‡Institute of Psychological Sciences, University of Leeds, UK

One important, but underreported, phenomenon in Tourette syndrome (TS) is the occurrence of “tic attacks.” These episodes have been described at conferences as sudden bursts of tic and/or functional tic-like movements, lasting from 15 min to several hours. They have also been described by patients in their Tourette syndrome community. To date, there are no reports of tic attacks in the literature. The aim of this article is to stimulate discussion and inform clinical practice by describing the clinical presentation of 12 children (mean age 11 years and 3 months; SD = 2 years and 4 months) with TS and tic attacks, with a detailed case report for one case (15-year-old male). These children commonly present to psychology departments and undergo unnecessary medical investigations. Interestingly, all children reported somatic anxiety, with worries about the tics themselves and an increased internal focus of attention on tics once the attacks had started. In keeping with other children, the index case reported a strong internal focus of attention, with a relationship between physiological sensations and urges, worries about having tic attacks, and behavioral responses (e.g., body scanning, situational avoidance, and other responses). In our experience, the attacks reduce with psychological therapy, for example, the index case attended 13 sessions of therapy that included metacognitive and attention training techniques, as well as cognitive-behavioral strategies. Following treatment, an improvement was seen across a range of measures assessing tics, mood, anxiety, and quality of life. Thus, psychological techniques used to treat anxiety disorders are effective at supporting a reduction in tic attacks through modifying attention, worry processes, and negative beliefs. It is hypothesized that an attentional style of threat monitoring, difficulties tolerating internal anxiety urges, cognitive maladaptations, and maladaptive coping strategies contribute to the onset and maintenance of tic attacks. These cases provide support for the view that tic attacks are triggered and maintained by psychological factors, thereby challenging the view that tic attacks merely reflect excitation of tics. As such, we propose that the movements seen in tic attacks may resemble a combination of tics and functional neurological movements, with tic attacks reflecting episodes of panic and anxiety for individuals with TS.

Keywords: tic disorders, focusing tic, functional neurological symptoms, psychogenic seizures, non-epileptic seizures
RELEVANT CHARACTERISTICS IN A CASE SERIES

HEDDERLY, MALIK, ROBINSON

• **Alexithymia**: Inability or poor ability to recognise, feel and describe emotions/ reduced emotional awareness

• **Emotional dysregulation**: a pervasive pattern of poorly modulated or excessive emotional responses to stimuli or distress

• **Intolerance of uncertainty**: a temperamental or dispositional characteristic

• **Interoception / Awareness**: internal stimuli as opposed to external.

• **Psychiatric co-morbidity**: looking for anxiety/ depression and other disorders - higher rates in patients with functional symptoms.

• **ASD/ ASD traits**: 
## TANDEM CLINICAL CASE SERIES:
### CHILDREN (N=15), WITH FUNCTIONAL TIC-LIKE MOVEMENTS

**Abbreviations:**

- **GAD:** Generalized anxiety disorder
- **ADHD:** Attention deficit hyperactivity disorder
- **Sep AD:** Separation anxiety
- **Soc AD:** Social anxiety
- **OCD:** Obsessive compulsive disorder
- **ASD:** Autism Spectrum Disorder

<table>
<thead>
<tr>
<th>Pt</th>
<th>M/F</th>
<th>Age</th>
<th>Age of Tic Onset</th>
<th>Co-morbidities</th>
<th>Alexithymia</th>
<th>Emotional Dys-regulation</th>
<th>Interoception High</th>
<th>Intolerance of Uncertainty</th>
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<tbody>
<tr>
<td>1</td>
<td>M</td>
<td>11</td>
<td>4</td>
<td>GAD/ADHD</td>
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<td>Y</td>
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<td>N</td>
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<tr>
<td>2</td>
<td>M</td>
<td>15</td>
<td>6</td>
<td>Sep AD</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
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<tr>
<td>3</td>
<td>F</td>
<td>16</td>
<td>6</td>
<td>Sep AD, Sickness Phobia, Health Anxiety</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
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<tr>
<td>4</td>
<td>M</td>
<td>14</td>
<td>11</td>
<td>ASD, GAD</td>
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<td>N</td>
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<td>GAD, ASD traits</td>
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<td>6</td>
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<td>N</td>
<td>Y</td>
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<tr>
<td>13</td>
<td>F</td>
<td>18</td>
<td>14</td>
<td>GAD Depression</td>
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<td>15</td>
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<td>10</td>
<td>9.5</td>
<td>ASD, Sep AD</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>
WHAT TO SAY?

- You have a condition called Functional neurological movements

- It is real and you are not making it up/ it is not your fault

- There is good news as the brain and nerves are working ok and there is no damage anywhere. It has just got out of balance and we need to help reset.
CONCLUSIONS

We have come along way….. But the journey is still ongoing…

Children and parents reported reduced attention to FNMD and benefits of external attention focusing, with this being an acceptable treatment approach.

Promising preliminary evidence for CBT with attention training components for the treatment of FNMD.

Limitations
Objective assessment of internal/external attention processing
Effectiveness of different treatment components

Future studies required to evaluate potential mechanisms of action.
For my part, I travel not to go anywhere, but to go.
I travel for travel's sake.
The great affair is to move."
Robert Louis Stevenson