Treatment of Functional Neurological Disorders in Children and Adolescents

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The Children’s Hospital at Westmead, The University of Sydney, Brain Dynamics Centre.
Consecutive referrals to the team over 4 years at CHW
Age-sex matched controls
57 also completed all clinical and laboratory assessments in the lab
(41 girls and 16 boys) aged 8.5 to 18 years
Sensory
n=31 (54%)

Nonepileptic
seizures
n=29 (51%)

Pain
n=33 (58%)

Motor
n=38 (67%)

7
3
1
8
1
2
4
4
5
8
7
5
2
Non-specific symptoms

Other somatic symptoms in addition to pain (54%)

- 14% nausea
- 30% dizziness
- 23% breathlessness
- 28% fatigue
Comorbid anxiety and depression

- 54% anxiety
- 14% depression
- 14% mixed anxiety and depression
Quality of attachment relationships

A Dynamic-Maturational Model of Patterns of Attachment in Adolescence
The rates of unresolved loss and trauma: 75% (n = 57/76) of children with conversion disorders versus 12% (n = 9/76) of controls. (Kozlowska et al, 2011)
<table>
<thead>
<tr>
<th>Event</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family conflict</td>
<td>38</td>
<td>67%</td>
</tr>
<tr>
<td>Child physical illness</td>
<td>27</td>
<td>47%</td>
</tr>
<tr>
<td>Bullying</td>
<td>27</td>
<td>47%</td>
</tr>
<tr>
<td>Loss via separation from a loved one or a friend</td>
<td>23</td>
<td>40%</td>
</tr>
<tr>
<td>Loss via death of a loved one</td>
<td>19</td>
<td>33%</td>
</tr>
<tr>
<td>Maternal mental illness</td>
<td>19</td>
<td>33%</td>
</tr>
<tr>
<td>Paternal mental illness</td>
<td>17</td>
<td>30%</td>
</tr>
<tr>
<td>Maternal physical illness</td>
<td>15</td>
<td>26%</td>
</tr>
<tr>
<td>Moving house</td>
<td>13</td>
<td>23%</td>
</tr>
<tr>
<td>Domestic violence events</td>
<td>12</td>
<td>21%</td>
</tr>
<tr>
<td>Father physical illness</td>
<td>9</td>
<td>16%</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>9</td>
<td>14%</td>
</tr>
<tr>
<td>Neglect</td>
<td>6</td>
<td>11%</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>6</td>
<td>11%</td>
</tr>
</tbody>
</table>
Step 1

A good medical assessment

Good =
what is needed by the neurologist (science of medicine)
+ What is needed by the family (art of medicine)
The science and art of Medicine
Step 2

Provision of an explanation
Failed explanations

- The doctor is dismissing our concerns
- This doctor does not know, so we need to find a doctor who does know and who can help our child
Elevated arousal / autonomic dysregulation
Reaction time to emotion faces

- Happy
- Fear
- Sad
- Angry
- Disgust
- Neutral
Issue of resource allocation

PFC is involved both in the regulation of emotional states and in cognitive control functions.
Shaiba

- 11 year old girl
- middle class family
- intermittent loss of motor function in her legs
- limb jerking
- loss of sensation in her feet
- non-epileptic seizure events
- panic attacks.
The components within the explanation

- it fits the family story
- it addresses all the symptoms
- it normalises the symptoms
- it provides clear information that outcomes are good
- it uses positive suggestions
NON-EPILEPTIC SEIZURES

WHAT ARE NON-EPILEPTIC SEIZURES?

When a young person experiences a seizure, she loses control of the body and may experience abnormal movements, loss of body tone, difficulty thinking clearly and sometimes a loss of consciousness. Epileptic seizures are caused by sudden, abnormal electrical discharges in the brain. Non-epileptic seizures can look just like epileptic seizures, but they are not caused by abnormal electrical discharges. Instead, they are triggered by stress. Common triggers include (i) physical stressors such as pain or hyperventilation, (ii) emotional stressors such as grief, distressing memories or sudden fear or (iii) a combination of both.

Although many people have never heard of non-epileptic seizures, they are quite common; studies suggest that up to a third of seizures treated in neurology departments are non-epileptic seizures. Our team regularly treats young people who have non-epileptic seizures.

A diagnosis of non-epileptic seizures will be made by your neurologist once other medical causes for the seizures have been ruled out. To eliminate other causes, your specialist will carry out all the necessary investigations.

OTHER NAMES FOR NON-EPILEPTIC SEIZURES...

There are a number of different names used for non-epileptic seizures; they all refer to the same thing. “Non-epileptic seizures” is the most up-to-date phrase.

Other names used include:

- Pseudoseizures
- Stress seizures
- Psychogenic seizures
- Psychogenic non-epileptic seizures
### OUTCOME

<table>
<thead>
<tr>
<th>Fully Recovered</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range 2 weeks to 5 years</td>
<td>35</td>
<td>61%</td>
</tr>
<tr>
<td>Time to recovery (median) = 6 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time to recovery (mean)  = 11.42 months</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relapsing in the Context of New Stress But Well in-Between (attending school or working)</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>17.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chronic Conversion Symptoms (non-epileptic events)</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conversion Disorder Transformed Into a Different Chronic Illness</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic pain (n=2)</td>
<td>9</td>
<td>16%</td>
</tr>
<tr>
<td>Chronic pain, fatigue, anxiety and depression (n=1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic and debilitating anxiety (n=1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eating disorder (n=1)</td>
<td></td>
<td></td>
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<tr>
<td>Factitious presentations (n=2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BORDERLINE PERSONALITY DISORDER AND SEVERE FAMILY CONFLICT (n=1)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lost to Follow Up (N=2)</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge against medical advice following a child protection notification (n=1); Family not contactable (n=1)</td>
<td>2</td>
<td>3.5%</td>
</tr>
</tbody>
</table>
Treatment: Mind-body inpatient program

- Decrease physiological arousal
- Physiotherapy (reconditioning, recondition the stress system and prevent secondary complications)
- Continue normal function (e.g. school)
- Psychological interventions (address self regulation)
- Family and system interventions
- Treat comorbid anxiety and depression
Training with feedback in MyCalmBeat
Treatment: Mind-body inpatient program

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- Family and system interventions
- Treat comorbid anxiety and depression
School intervention
Treatment: Mind-body inpatient program

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- Family and system interventions
- Treat comorbid anxiety and depression
Clinical papers

Breathing resources

www.mybrainsolutions.com/mycalmbeat
My calm beat biofeedback tool

www.coherence.com
Respire-1 CD
Slow down CD

www.robertpeng.com
Qigong moving meditation

www.haveahealthymind.com
Breath-Body-Mind workshops