CASE REPORT

Cognitive behavioural therapy as a potential treatment for vasovagal/neurocardiogenic syncope—a pilot study

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Vasovagal syncope (VVS) is an exaggerated tendency to the common faint that affects any age group. Conventional treatment is non-specific and involves strategies to increase blood pressure. Patients with VVS are often unable to work or complete education due to actual, or fear of, syncopal symptoms.

Here we present a series of nine patients with VVS whose symptoms had proved resistant to conventional treatments where intervention with cognitive behavioural therapy (CBT) led to significant reductions in reported syncopal episodes and consultations at our unit. All subjects post-intervention were able to return to work or schooling.

CBT is an effective treatment in those with difficult to manage VVS. Randomized controlled trials are needed.

Key Words: Cognitive behavioural therapy, Vasovagal/neurocardiogenic syncope.

Introduction

Vasovagal or neurocardiogenic syncope (VVS) is an exaggerated tendency towards the common faint which affects all age groups. It can have profound impact upon the quality of life of the sufferer and is associated with school absences in children and sickness from work in adults. The pathophysiology of VVS is unknown and current treatments are non-specific including salt and fluid replacement and maintenance of blood pressure using mineralocorticoids or alpha agonists.

It has been identified that those with VVS, particularly women, experience raised anxiety levels[1] and apprehension about the feared consequences of fainting. Symptoms may be provoked by real, threatened or imaginary blood or injury.

Literature searches reveal a limited number of single case reports, and exploratory small-scale studies pertaining to the impact of psychological interventions in the management of VVS. Case reports have described the successful use of applied tension and cognitive behavioural (CBT) interventions in a range of age groups with VVS[2–4].

Applied tension is a coping technique involving learning to tense major muscle groups at the first sign of faintness, i.e. the prodrome[5]. This technique has been shown to increase heart rate, boost blood pressure, and raise cerebral blood flow[6] and is thus incompatible with VVS.

CBT addresses unhelpful thoughts, beliefs and somatic attention that serve to sustain long-term restriction of activity and disability with the aim of developing more adaptive beliefs about the ability to manage and cope with fainting. Targeted beliefs include...
those about the predicted likelihood of fainting and fears of the perceived negative consequences, along with assumptions of having little or no control. Together, these beliefs result in fear and restriction of activity. Vigilance of somatic signs linked with fainting may maintain apprehension and fear. Fear arousal may amplify the physical signs associated with syncope. Avoidance and other self-protecting behaviours reinforce the belief that particular situations are dangerous, and prevent the development of adaptive ways of approaching the condition.

Here we present a series of patients with a definite diagnosis of VVS (i.e. diagnosed by positive head-up tilt with full reproduction of symptoms), in whom conventional treatments had not improved symptoms but where CBT resulted in dramatic improvements in symptomatology, consultation behaviour and outcome.

Patients

Patients with a diagnosis of VVS confirmed by head-up tilt test with full symptom reproduction, who had proved resistant to conventional treatment, and in whom symptoms were having profound impact upon quality of life were referred for psychology assessment. Subjects were included if syncopal symptoms precluded them from work or schooling, and where medication had failed adequately to control symptoms. All subjects had a recognized prodrome prior to syncope which could allow them to take evasive action.

Assessment was by one clinical psychologist (CB) who was unaware of the haemodynamic parameters or consultation behaviour of the patients before referral. This treatment was offered alongside (not instead of) routine care in the Falls and Syncope Unit (FSU).

All patients were followed-up in the FSU at the discretion of the clinician seeing the patient who was unaware that consultation behaviour would be subsequently reviewed. Follow-up was determined from the date of initial assessment in the FSU and continued up to June 2002.

Psychological intervention

Patients met the psychologist for an average of three treatment sessions (range 1–6). The approach involved:

- A detailed assessment cumulating in reconceptualizing the possible factors associated with disability and distress, and encouragement to engage in a psychological approach.
- Treatment comprised identifying and restructuring unhelpful beliefs; addressing maladaptive somatic attention; help in returning to a wider range of activities; the use of applied tension, and addressing idiosyncratic issues—for example, difficulties sleeping, coping with reactions of others.
- Teaching maintenance strategies.

<table>
<thead>
<tr>
<th>ID</th>
<th>Age (yrs)</th>
<th>Sex</th>
<th>Syncope/month</th>
<th>Consults total</th>
<th>Consults/month</th>
<th>Months follow-up</th>
<th>Outcome</th>
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<tbody>
<tr>
<td>1</td>
<td>40</td>
<td>F</td>
<td>12</td>
<td>5</td>
<td>3.6</td>
<td>3</td>
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</tr>
<tr>
<td>2</td>
<td>52</td>
<td>M</td>
<td>1</td>
<td>4</td>
<td>0.7</td>
<td>0</td>
<td>Feels better</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
<td>F</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>12</td>
<td>Able to take exams</td>
</tr>
<tr>
<td>4</td>
<td>38</td>
<td>F</td>
<td>0.2</td>
<td>18</td>
<td>1.8</td>
<td>4</td>
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</tr>
<tr>
<td>5</td>
<td>18</td>
<td>M</td>
<td>30</td>
<td>15</td>
<td>1.3</td>
<td>14</td>
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<tr>
<td>6</td>
<td>59</td>
<td>M</td>
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<td>15</td>
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<td>9</td>
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<tr>
<td>8</td>
<td>39</td>
<td>F</td>
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<td>10</td>
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<td>Back at work</td>
</tr>
<tr>
<td>9</td>
<td>31</td>
<td>M</td>
<td>48</td>
<td>18</td>
<td>2.7</td>
<td>7</td>
<td>Coping better with symptoms</td>
</tr>
</tbody>
</table>

**Table 1** Case series of nine patients with definite VVS referred for cognitive therapy (consults refers to number of consultations at the FSU or admissions to hospital; significantly different results are shown using a Student’s paired t-test comparing values before and after intervention by the psychologist)

<table>
<thead>
<tr>
<th>P-values</th>
<th>Total group mean (SD)</th>
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<tr>
<td>0.04</td>
<td>0.02 ns</td>
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<tr>
<td>0.004</td>
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</table>

Europace, Vol. 5, July 2003
Results

Nine patients with a definite diagnosis of VVS were referred for clinical psychologist assessment between January 2001 and January 2002. Mean (SD) age of patients was 37 ± 14. None of the subjects had evidence of overt psychiatric disorder.

The patients had a total of 171 consultations in the FSU during 147 months of total follow-up (1.2 consultations/month). Consultation rates before and after CBT are shown in Table 1. Before psychology intervention subjects reported significantly more syncopal episodes \( (P = 0.04) \) compared with after, and despite no difference in follow-up time the number of consultations per month was significantly reduced after intervention \( (P = 0.0044) \). All patients subjectively improved post-CBT particularly in the ability to return to work or school.

Discussion

VVS is a debilitating condition for which the aetiology is unknown. In this case series we describe the beneficial use of CBT in those with treatment resistant VVS.

Although this is a small retrospective observational case series, it does highlight the potential benefits of CBT in this difficult group of patients in whom the use of medication may be undesirable. Individuals appear to benefit personally in terms of ability to return to work or school, report fewer syncopal episodes and consult less frequently, all of which have cost implications.

The CBT techniques used in this pilot study included applied tension. Recent reports have suggested that leg crossing and muscle tensing can control the symptoms of VVS\(^7,8\) and the relative contributions of psychology and muscle tensing techniques in the management of VVS need to be further explored.

Randomized controlled studies are needed to examine psychology input in VVS sufferers at first presentation rather than in medical treatment resistant patients. In addition, CBT needs to be compared with placebo as well as conventional symptomatic treatments such as mineralocorticoids and alpha agonists to determine in a cost and clinical effectiveness analysis whether CBT is superior. If the results of this series are replicated in larger numbers of patients then CBT has the potential to be more effective than conventional medical treatments.

Acknowledgements

We thank Janet King, Trainee Clinical Psychologist, for assistance with review of medical notes.

References