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Syncope Trust And Reflex anoxic Seizures®
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SHOWCASING SYNCOPE PIONEERS OF 2022

STARS HEALTHCARE PIONEERS REPORT

In memory of Dr Adam Fitzpatrick

www.syncopepioneers.org

UK Registered Charity No. 1084898

FOREWORD

This competition is now held annually in honour of Adam Fitzpatrick who contributed so much to the diagnosis and management of syncope.

This year, we have received abstracts from around the world with the five winners coming from US, Canada and Turkey. This is very impressive as it reflects so well on both Adam's memory and STARS. I have no doubt that Adam would be proud of these results. It also reflects the lack of outlets for excellent work on syncope, This is sad for the nascent specialty but a great plus for STARS, an organisation which is dedicated to the care of syncope patients around the world and to the advancement of science within this field.

The five winners contribute in smart phone diagnosis of syncope and the importance of history and guidelines in syncope diagnosis and management. Moreover, management receives valuable attention in demonstrating non-pharmaceutical treatment of initial orthostatic hypotension, rehabilitation for POTS and cardioneuroalablation in vasovagal syncope.

Careful appreciation of these reports which will, we must hope, appear in full scientific papers later offers real help for our patients.

In 2000, Adam met Trudie Lobban MBE, who had founded STARS (Syncope Trust And Reflex anoxic Seizures), and together they achieved a great deal including constructing the Blackouts Checklist which was launched by Sir Roger Moore, Patron of STARS. Its value was to enhance the patient consultation by prompting conversation between the patient and consultant. It also prompts the doctor to seek answers leading to a correct diagnosis. This checklist was the first of its kind. Following the success of STARS Blackout Checklist, Adam founded a 'Rapid Access Blackout Clinic' in Manchester, the first anywhere in the world. Patients could be referred and seen in less than two weeks, thereby reducing long waiting times, misdiagnoses and even sudden cardiac death from undiagnosed cardiac arrhythmia. This concept has now been widely adopted and has improved outcomes for these patients.

Adam and Trudie were also successful in 2004, by pressing for an additional chapter to National Service Framework on heart disease in the NHS, to include arrhythmias. This was followed by establishment of the Arrhythmia Alliance charity of which Adam was a founding Trustee, and three years later the patient-oriented AF (Atrial Fibrillation) Association was launched. Adam had remained as chairman of the Medical Advisory Committee of STARS, as well as being Medical Director & Trustee of the Arrhythmia Alliance and member of the AF Association Medical Advisory Committee.

Adam strived for perfection and always put the patient first. His dedication to the STARS community and to improving patient outcomes was always paramount in everything he did. Thus, this activity of STARS is thought to be a proper tribute to Adam's great achievements, once again to the benefit of patients.

Trudie Lobban MBE
Founder and CEO,
STARS

Prof. Richard Sutton
STARS Medical
Advisory Committee

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COST AND DRUG FREE NOVEL SYMPTOM MANAGEMENT TECHNIQUES CAN PRE-EMPTIVELY RELIEVE PRE-SYNCOPE SYMPTOMS IN INITIAL ORTHOSTATIC HYPOTENSION

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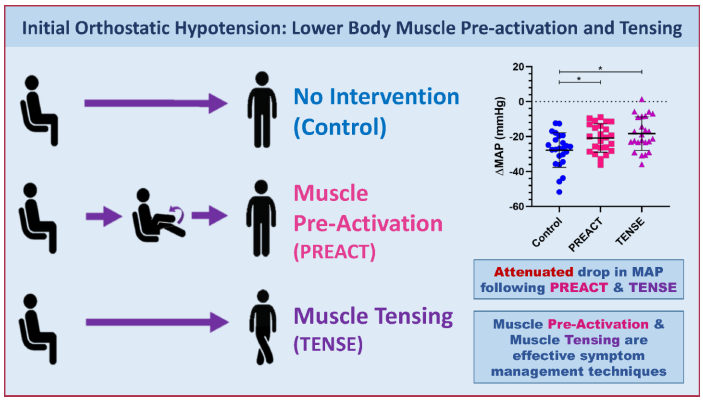

INTRODUCTION

Initial Orthostatic Hypotension (IOH) is a transient form of orthostatic intolerance defined by a large reduction in blood pressure within 15s of active standing, resulting in symptoms of pre-syncope or a faint. Many people experience this phenomenon occasionally, but some people experience these symptoms frequently, sometimes multiple times a day. This can cause significant distress in their day-to-day life. Although this disorder can significantly impact patients, it has largely been overlooked.

METHODS

Patients have often reported that if they briefly sit down when lightheaded, that the symptoms do not reoccur when they stand again. This suggests that the response causing IOH has a refractory period. We studied this further, using a series of sit-to-stand maneuvers, and found that a short refractory period (<2mins) does in fact exist. Based on these findings, we wondered if this refractory period could be exploited for treatment. Our goal was to provide novel symptom management strategies by exploiting this refractory period by pre-activating lower body muscles prior to standing in patients with IOH.

Study participants performed 3 sit-to-stand maneuvers in a random order, including a stand with no intervention (Control), lower body muscle pre-activation before standing (PREACT) through seated knee raises, and lower body muscle tensing (TENSE) through leg crossing and tensing after standing. Participants remained seated for a 10 minute baseline before each 2 minute stand, and each intervention was performed for 30s. Continuous heart rate and beat-to-beat blood pressure were measured. Cardiac output and stroke volume were then estimated from these waveforms using ModelFlow. Symptom ratings were taken verbally immediately after standing using the Vanderbilt Orthostatic Symptom Score (VOSS). Data are reported as mean±SD.

RESULTS & CONCLUSION

A total of 24 female IOH participants (age: 32±8 years, BMI: 24±6 kg/m2) completed the study. The drop in mean arterial pressure (MAP) following PREACT (-21±8 mmHg; $p<0.001$) and TENSE (-18±10 mmHg; $p<0.001$) were significantly reduced compared to Control (-28±10 mmHg). The increase in cardiac output was significantly larger following PREACT (2.6±1.0 L/min; $p<0.001$) but not TENSE (1.9±1.0 L/min; $p=0.2$) compared to Control (1.4±1.0 L/min). The VOSS score following PREACT (9±8 au; $p=0.033$) and TENSE (8±8 au; $p=0.046$) were both significantly reduced compared to Control (14±9 au).

Both symptoms and the drop in MAP were improved upon standing with either PREACT or TENSE. These maneuvers provide simple, cost-free, and effective symptom management techniques for patients with IOH that may be reversible following surgical decompression. Identification of therapeutic methods to manage symptomatic bradycardia obviates the need for permanent pacemaker implantation in patients awaiting decompressive surgery. This case study illustrates the novel use of heart-rate monitoring alarm device as a low-cost temporary alternative to permanent pacing in the management of these patients.

CARDIONEUROABLATION IS ASSOCIATED WITH IMPROVED QUALITY OF LIFE IN PATIENTS WITH CARDIOINHIBITORY TYPE VASOVAGAL SYNCOPE

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INTRODUCTION

Cardioneuroablation (CNA) emerged as a safe and feasible alternative in treatment of vasovagal syncope (VVS). The aim of this study was to demonstrate if this novel treatment results in improvement in quality of life (QoL) of the patients.

METHODS

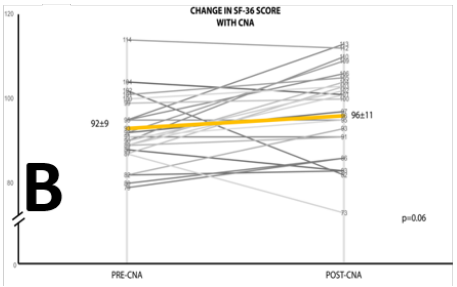
Patients with documented cardioinhibitory type VVS in tilt table testing, who underwent CNA in our center, were enrolled in this study. ECGs were obtained prior to procedure, and at 6-month follow-up visit. QoL was assessed with the use of SF-36 and EQ VAS questionnaires.

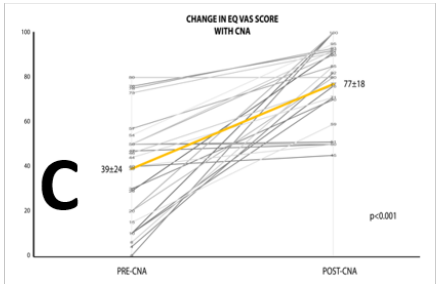
Figure 1. A. Baseline characteristics and change in ECG and quality of life measures; B. Change in quality of life assessed with SF-36 score, C. Change in quality of life assessed with EQ-VAS score at 6 month follow up compared with baseline

		Valid Cases	Pre-CNA	Post-CNA	p
Demographics					
	Female,n(%)	25	13(48)	-	-
	Age,years	25	34±14	-	-
Electrocardiography					
	Heart rate,bpm	**25**	**74±15**	**84±14**	**0.003**
	PR,ms	25	160±62	162±56	0.62
	QT,ms	25	387±40	372±45	0.10
Quality of Life					
	SF-36 Score	27	92 ± 9	96±11	0.06
	EQ-VAS Score	**27**	**39±24**	**77±18**	**<0.001**
	Mobility	**27**	**3±2**	**2±1**	**<0.001**
	Self-Care	27	1±1	1±1	0.08
	Usual Activity	**27**	**2±1**	**1±1**	**0.043**
	Pain	27	2±1	2±1	0.21
	Anxiety	27	2±2	2±1	0.35

A

CNA: cardioneuroablation





RESULTS & CONCLUSION

Twenty-seven patients (age: 34±14 years, 48% female) were enrolled in this study. ECG data were available in 25 patients while QoL data were available in 27 patients. At 6-month follow-up, while heart rate significantly increased (74±15bpm to 84±14bpm, p=0.003), PR interval remained unchanged (Figure 1A). Whereas quality of life assessed with SF-36 score didn't differ significantly, EQ-VAS score demonstrated significant improvement at 6-month follow-up (Figure 1B-C). No recurrent syncopal episode was observed during the follow-up period.

Our findings suggest that CNA might be associated with improvement in QoL in patients

A DEDICATED CARDIAC REHABILITATION AND SELF-MANAGEMENT PROGRAM FOR WOMEN LIVING WITH POSTURAL ORTHOSTATIC TACHYCARDIA SYNDROME (POTS) IN ONTARIO, CANADA.

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WOMEN'S COLLEGE HOSPITAL
Healthcare | REVOLUTIONIZED

INTRODUCTION

Postural orthostatic tachycardia syndrome (POTS) is a chronic condition associated with impaired quality of life and disability. Few dedicated specialty clinics for POTS exist in Canada, and even fewer multidisciplinary programs. The Canadian Cardiovascular Society position statement on POTS recommends exercise and lifestyle modification as a first line non-pharmacological management strategy.

METHODS

Women's College Hospital has the longest running women's only cardiac rehabilitation (CR) program in Canada. As part of this program, women with POTS have been supported as a core component of non-pharmacologic treatment. However, patients with POTS have different needs to "traditional" CR participants. Therefore, following a process of retrospective chart reviews, literature review, patient surveys and staff feedback all integrated with evidence-based guidelines, we created a specialized POTS "Bootcamp".

Pre-pandemic, the Bootcamp was held in person. Each Bootcamp ran for 4 weeks and incorporated education sessions followed by supervised exercise. Topics covered included clinical assessment; symptom management; recumbent aerobic exercise; resistance training and counter pressure maneuvers; dietary strategies to optimize hydration and salt; stress management and coping skills. The last session incorporated a focus group interview for feedback and quality improvement of the program.

We completed two in person Bootcamps in November 2019 and February 2020.

In response to the COVID-19 pandemic we pivoted to a virtual program. Each Bootcamp consisted of weekly sessions, over five weeks, and involved self-management and exercise; pre-recorded exercise videos were shared with the participants at the start of the virtual program. We focused on goal setting and action plans in relation to self-management.

We completed five virtual Bootcamps from July 2020 to October 2021.

A total of 53 patients completed the bootcamp program, 12 in person and 41 virtually. With the virtual program we demonstrated an increase in catchment area (maximum distance for in person was 83km and virtual was 586km).

With both formats there was high attendance and patient satisfaction.

Patients shared appreciation for having a virtual option; learning self-management; peer support and validation of their experiences.

RESULTS & CONCLUSION

This self-management and peer support multidisciplinary model delivered in a "Bootcamp" format demonstrated high adherence and patient satisfaction. Although early results are encouraging, formally evaluating feasibility and effectiveness is warranted.

Expanding specialized CR to more patients who live a significant distance from specialist centers is a promising option. Teams must be well versed in virtual care, self-management, and peer support to address the needs of this unique patient population.

AMBULATORY DIAGNOSIS OF A SERIOUS ARRHYTHMIA USING A SMARTPHONE ECG

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INTRODUCTION

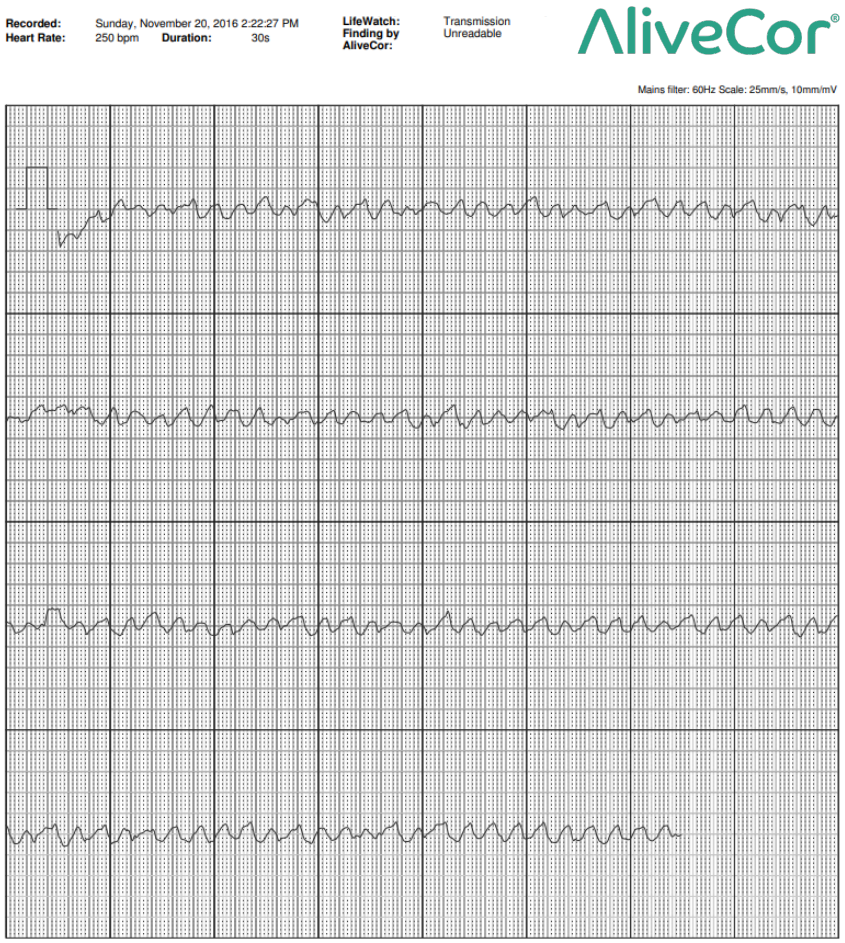
Ambulatory Diagnosis of a Serious Arrhythmia Using a Smartphone ECG

METHODS

This is the case of a 39-year-old otherwise healthy woman who is a Registered Nurse, who was referred to a Cardiac Electrophysiologist with a chief complaint of getting lightheaded during runs. She underwent conventional ambulatory monitoring with a 2-week patch and even underwent a diagnostic Electrophysiologic study, both of which were negative. She was recommended to purchase an over-the-counter ECG (Kardia Mobile, AliveCor, Mountain View, CA, USA) for use if her symptoms returned.

RESULTS & CONCLUSION

The next time she had the symptoms, she was pre-syncopal and recorded the attached ECG which was diagnosed as Fast VT or VF. She was referred to the Mayo Clinic and underwent a VT ablation and had an ICD implanted.



SYNCOPE: THE IMPORTANCE OF HISTORY, GUIDELINE DIRECTED DIAGNOSTIC TESTING AND THERAPY

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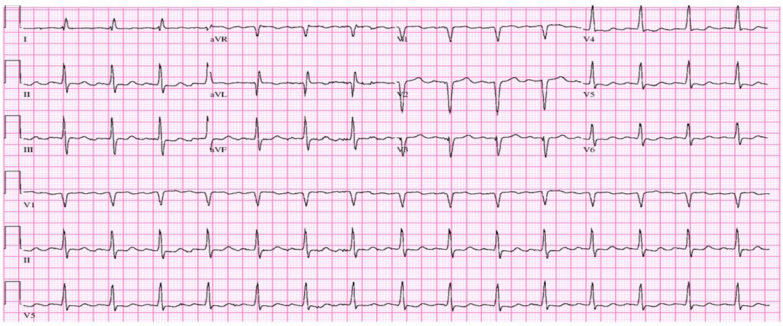
INTRODUCTION

A 69-year-old female was referred for evaluation of two episodes of syncope in the past three months. The first episode occurred when she was sitting at the kitchen table having a cup of coffee. Her husband caught her before she hit the floor. She had immediate recovery. Evaluation in the ER was unremarkable. Two months later, she fell off a bike. She remembered hitting the ground although she was unsure how it happened. Her husband was riding his bike behind her and witnessed the event. He thought she "missed the foot pedal." She is college professor and very active. Her past medical history is significant for a surgical ASD repair, tricuspid annuloplasty, cryo Maze procedure for recurrent atrial fibrillation eight years ago. Other than occasional palpitations correlated to sinus tachycardia, she has not had any recurrent arrhythmias. She was not taking any cardiac medications.

METHODS

Her physical examination was unremarkable except for a midline sternal scar. A 12-lead ECG is shown in Figure 1. An echocardiogram showed LVEF of 64%, normal LV size, mild RV enlargement, trivial tricuspid regurgitation. A 48-hour Holter monitor showed sinus rhythm without pauses, SVT, or VT. An electrophysiology study (EPS) showed HV of 55 msec (normal 45-55 msec), with normal AV conduction. No SVT or VT was inducible. After procainamide 10 mg/Kg, HV increased from 55 msec to 75 msec. The EPS was non-diagnostic. A loop recorder (ILR) was implanted. Patient experienced a recurrent syncope six weeks after the ILR implantation. The rhythm strip from the ILR is shown in Figure 2. A dual chamber pacemaker (PM) was implanted. She has done well without any recurrent syncope four years after the PM implantation

Figure 1



RESULTS & CONCLUSION

Syncope is a ***symptom*** with multiple potential causes. The most common cause of syncope is vasovagal syncope or orthostatic intolerance with benign prognosis. Cardiac causes of syncope occur less commonly although can be associated with life threatening consequences or significant injury. A thorough history and physical examination is required during initial evaluation.
The clinical presentation of sudden onset of syncope with minimal warning, a history of cardiac surgery, and borderline abnormal baseline ECG of our patient suggest a cardiac cause of her syncope is likely. The differential diagnosis would include intermittent bradycardia or tachycardia. Syncope due to supraventricular tachycardia is uncommon. Intermittent ventricular tachycardia is in the differential diagnosis although less likely in the setting of preserved left ventricular function. An exercise induced idiopathic ventricular tachycardia is plausible although her symptoms did not occur with exercise as she exercised regularly. An EPS can be useful in this setting (a Class IIa indication). The non-diagnostic findings from EPS highlights the moderate sensitivity and specificity of EPS in assessing intermittent sinus node and AV conduction abnormalities. In this patient with suspected cardiac syncope, an ILR can be effective (a Class IIa indication). A pacemaker is indicated (a Class I indication) and effective in a patient with symptomatic intermittent bradycardia.

Figure 2

THE 2022 SYNCOPE PIONEERS CENTRES OF EXCELLENCE

The following centres (listed alphabetically by location) are acknowledged as a Syncope Centre of Excellence. As evidenced by the case studies that have been submitted, and that have been published in this report, each centre takes an innovative approach to managing syncope. Their work can be used to inspire other centres to improve care and quality of life for people with syncope.

ARIZONA, USA

Syncope: The Importance of History, Guideline Directed Diagnostic Testing and Therapy (page 08)

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CALGARY, CANADA

Cost and drug free novel symptom management techniques can pre-emptively relieve pre-syncope symptoms in Initial Orthostatic Hypotension (Page 04)

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CALIFORNIA, USA

Ambulatory Diagnosis of a Serious Arrhythmia Using a Smartphone ECG (Page 07)

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ISTANBUL, TURKEY

Cardioneuroablation is associated with improved quality of life in patients with cardioinhibitory type vasovagal syncope (Page 05)

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ONTARIO, CANADA

A dedicated cardiac rehabilitation and self-management program for women living with postural orthostatic tachycardia syndrome (POTS) in Ontario, Canada (Page 06)

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Faith Delos-Reyes, Jennifer Price and Dr. Paula Harvey
www.womenscollegehospital.ca/care-programs/cardiology

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The Blackouts Checklist was prepared under the guidance of STARS' expert Medical Advisory Committee. Its principal aim is to help you and your doctor reach the correct diagnosis for any unexplained loss of consciousness (blackout).

The Checklist gives you information and advice on the major reasons for experiencing a blackout, helps you prepare for a doctor's appointment, and provides information on what to expect if you have to attend a hospital appointment.

CHECKLIST: **What do you need to know?**

☑ A blackout is a temporary loss of consciousness

If someone loses consciousness for a few seconds or minutes, they are often said to have had a blackout.

☑ There are three major reasons for why people may experience a blackout(s):

- **Syncope: a sudden lack of blood supply to the brain.** Syncope is caused by a problem in the regulation of blood pressure or by a problem with the heart.
- **Epilepsy: an electrical 'short-circuiting' in the brain.** Epileptic attacks are usually called seizures. Diagnosis of epilepsy is made by a neurologist.
- **Psychogenic blackouts: resulting from stress or anxiety.** Psychogenic blackouts occur most often in young adults. They may be very difficult to diagnose. 'Psychogenic' does not mean that people are 'putting it on'. However there is often underlying stress due to extreme pressure at school or work. In exceptional cases it may be that some people have experienced ill treatment or abuse in childhood.

☑ Every patient presenting with an unexplained blackout should be given a 12-lead ECG (heart rhythm check)

It is important that the ECG is passed as normal.

☑ Witness information is vital for the evaluation of blackouts

Make sure a witness (family or friend) who has been with you during a blackout or fall is present during any meeting with a doctor.

☑ Most unexplained blackouts are caused by syncope

But much more commonly they are due to syncope (pronounced sin-co-pee) – a type of blackout which is caused by a problem in the regulation of blood pressure or sometimes with the heart. Up to 50% of the population will lose consciousness at some point in their life due to syncope. Syncope can affect all age groups but the causes vary with age, and in older adults multiple causes often exist.

☑ Many syncopal attacks only require reassurance from your GP

Many syncopal attacks require only explanation and reassurance from a GP or trained nurse regarding the likely absence of anything being seriously wrong. Consultation with a specialist will be necessary, though, if the cause of the syncope remains uncertain or if there are particularly concerning symptoms or there is a family history of a heart condition. Also, if the blackouts happen on several occasions, you may be referred to a specialist.

☑ Misdiagnosis is common but avoidable:

- Many syncopal attacks are mistaken for epilepsy.
- However, epilepsy only affects slightly less than 1% of the population.
- UK research has shown that approximately 30% of adults and up to 40% of children diagnosed with epilepsy in the UK do not have the condition.
- Many elements of a syncopal attack, such as random jerking of limbs, are similar to those experienced during an epileptic seizure.
- It can be difficult to tell the causes of the blackout apart.

☑ Syncope causes falls:

- Syncope causes a significant number of falls in older adults, particularly where the falls are sudden and not obviously the result of a trip or slip.
- Many older adults will only recall a fall and will not realise they have blacked out.
- Greater awareness of syncope as a cause of falls is key to effective treatment and prevention of recurring falls.

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The Blackouts Checklist

Helping you and your doctor reach the correct diagnosis following unexplained loss of consciousness or falls

CHECKLIST: **Preparing for an appointment with your GP**

- ☑ Before visiting your doctor, it is important to write down what happens before, during and after a blackout or fall, including any symptoms you may experience.
- ☑ Try to take along a family member or friend, who has seen your blackout(s) or fall(s), to your appointment. If they cannot accompany you, ask them to write down exactly what they saw in the Checklist booklet or ask them how the doctor could contact them if necessary. If it is safe to video an attack, this is often very helpful in making a diagnosis.
- ☑ Family history; check with relatives whether there is any family history of blackouts, faints, epilepsy, or sudden/unexplained deaths. This is important as it can often provide a clue to the possible cause of your blackout.
- ☑ If there are any questions you want to ask your doctor or specialist, make a note of them on the Checklist as it can be easy to forget to ask them during the consultation.
- ☑ Check that both syncope and epilepsy have been considered. Ask for a referral to a paediatrician (for a child) or a cardiologist/electrophysiologist (heart rhythm expert) if possible or, if you are unsure that the diagnosis is accurate, to both a cardiologist and neurologist. You could also ask about possible referral to local rapid-access clinics for blackouts, falls or arrhythmias.
- ☑ Make detailed notes – use the space later in the Checklist.
- ☑ Take the Checklist and your notes with you to your appointment.

CHECKLIST: **Questions to ask your GP**

During your GP appointment it can be hard to remember everything. Here are some suggestions of questions which you may find useful to ask during your appointment. There is a section on the Checklist for you to make a note of any questions for your GP.

- ☑ Can I still go to school, college or work whilst I am waiting to see the specialist?
- ☑ Can I go to the gym/play sport whilst I am waiting to see the specialist?
- ☑ Can I still drive whilst I am waiting to see the specialist?
- ☑ What is the likelihood that a diagnostic test will deliver a definitive result?
- ☑ What will the treatment involve? Do you think I will have to visit the hospital frequently or stay overnight?

CHECKLIST: **Preparing for specialist tests at the hospital**

- ☑ Following your appointment with the doctor you may be referred for some tests with a specialist to determine the cause of your blackouts. Being prepared for these can significantly reduce the anxiety of a hospital visit. Try to learn about these in advance at **www.stars.org.uk** and go to 'For Patients' section of the website.
- ☑ The latest guidelines on the diagnosis of syncope state that patients suspected of having syncope should receive one of the following tests. Make sure that you receive the right test based on the nature of your symptoms.
- ☑ There are information sheets on the following diagnostic tests available from **www.stars.org.uk**

Every patient presenting with an unexplained blackout should be given a 12-lead ECG

- **12-lead electrocardiogram (ECG) for heart rhythm analysis** – Every patient presenting with an unexplained blackout should be given a 12-lead electrocardiogram (ECG). If there is uncertainty about diagnosis the ECG should be reviewed by a heart rhythm specialist (electrophysiologist).

Tests aimed at syncope:

- **Lying and standing blood pressure recording** Drops in blood pressure with changes in posture can cause dizziness, falls and blackouts, particularly in older patients and those on blood pressure medicines and diuretics (water tablets).
- **Heart monitor** – This is used to record heart rhythms whilst away from the hospital or to activate during an episode. A 24-hour/seven day heart rate monitor is very unlikely to identify any problems if you experience blackouts once a week or less, so do not be afraid to ask about other options.
- **Insertable cardiac monitor (ICM)** – This device should be used to monitor heart rhythms for months at a time if the episodes are less frequent than every two weeks. The device can remain in place for up to three years.
- **Tilt table testing** – This procedure can be used to induce a syncopal/fainting attack whilst connected to heart and blood pressure monitors.

Tests aimed at epileptic seizures:

- **Electroencephalogram (EEG)** – For brain activity analysis to check for epilepsy. The EEG cannot be used to diagnose epilepsy, but it is helpful to neurologists to decide which type of epilepsy is happening. The EEG is much less useful over the age of 35 years.
- **MRI or CT-scan** – These are not aimed at showing that someone has epilepsy, but are used to seek the cause when epilepsy is likely, and look for more sinister causes of blackouts and/or seizures.

CHECKLIST: **Questions to ask your GP and specialist**

During your GP or Specialist appointment it can be hard to remember everything. Here are some suggestions of questions which you may find useful to ask during your appointment. There is a section on the Checklist for you to make a note of any questions for your GP/Specialist.

- ☑ Can I continue to drive?
- ☑ What is the likelihood that a diagnostic test will deliver a definitive result?
- ☑ If treatment is offered you may wish to ask whether it will completely stop you having blackouts or falls. If no treatment is offered be sure to ask the best way to manage your condition.

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The Blackouts Checklist

Sometimes during a consultation it can be hard to remember everything. The checklist is designed for you to complete. If you have a friend or family member (witness) who has been with you during a blackout or fall, it is VITAL to ask for their help in filling out parts of the form. Please ensure your witness completes their sections of the Checklist. This will help your GP to refer you to the appropriate specialist to make the right diagnosis.

Preparing your own CHECKLIST

To give the doctors the best chance of making the right referral or diagnosis you should provide as many details as possible about your blackout(s) or fall(s).

Name: .....

1. List any medication(s) you are currently taking: .....

.....

2. Do you experience blackouts, falls or both? *(Tick as appropriate)*

☐ Blackouts ☐ Falls ☐ Blackouts and Falls

If you experience falls, are they unexplained or due to a slip or trip?

☐ Unexplained ☐ Slip or trip

3. Do you always lose consciousness? Please ask a witness *(Tick as appropriate)*

☐ Yes ☐ No

How long are you unconscious for? .....

4. How frequent are your blackouts or falls? *(Tick as appropriate)*

☐ Daily ☐ Weekly ☐ Every one to two weeks

☐ Less frequent than every two weeks

5. Before a blackout or fall did you have any warning signs? *(Tick as appropriate)*

☐ Light-headedness ☐ Sweating ☐ Nausea

☐ Looking pale ☐ Palpitations ☐ Greying out or dots in vision

☐ Change in hearing ☐ Other (give details below)

6. Is there anything that triggers your blackout or fall?

(Tick as appropriate; if one trigger occurred at one time and another at another time, tick both)

☐ Pain or a fright ☐ Not eating ☐ Alcohol

☐ Lack of sleep ☐ Stressful situation ☐ Flashing lights

☐ Anxiety ☐ Going from sitting or lying to standing ☐ Standing for a long time

☐ Being very hot ☐ Exercise ☐ Other *(give details below)*

7. Describe what happens during your blackout or fall. Please include whether your episodes are identical on each occasion or if there are differences.

If you are not conscious or cannot remember to ask someone who was with you at the time to describe what happened.

Your description .....

.....

Friend or family description .....

.....

.....

WITNESS: Do the individual's limbs move whilst they are unconscious? Do they jerk about randomly or rhythmically?

☐ Randomly ☐ Rhythmically

WITNESS: Do the individual's arms move around their head?

☐ Yes ☐ No

WITNESS: Are the individual's eyes opened or closed?

☐ Don't know ☐ Open ☐ Closed

If open, how do their eyes move? .....

.....

8. After your blackout

WITNESS: Following the individual's blackout or fall, how long before they regain consciousness?

.....

After the blackout or fall are you confused on coming around? How long does the feeling last?

.....

How do you feel after a blackout or fall?

.....

Are your blackouts or falls affecting your daily activities or quality of life?

☐ Yes ☐ No

9. Family history

			If there is, who/what relation?
Is there a history of loss of consciousness in your family?	☐ Yes	☐ No	.....
Is there a history of deafness in your family?	☐ Yes	☐ No	.....
Has anyone suffered a sudden cardiac death in your family?	☐ Yes	☐ No	.....
Have there been any sudden deaths in the family under 55 years?	☐ Yes	☐ No	.....

Is the cause known? .....

Any other questions you would like to ask the doctor or specialist: .....

.....

.....

GLOSSARY

ARRHYTHMIA An abnormal heart rhythm.

ATRIOVENTRICULAR (AV) BLOCK The electrical signal travelling from the upper chambers (atria) of the heart to the lower chambers (ventricles) of the heart is impaired.

BLACKOUT A temporary loss of consciousness (TLoC) of unknown cause.

BRADYCARDIA A slower than normal heart rate (less than 60 beats per minute).

CARDIONEUROABLATION Radiofrequency (RF) catheter ablation of the cardiac vagal nervous system aiming for permanent attenuation or elimination of the cardioinhibitory reflex.

ELECTROCARDIOGRAM (ECG/EKG)A non-invasive test that records the heart's rhythm and rate.

HYPOTENSION Low blood pressure.

INSERTABLE CARDIAC MONITOR (ICM) also known as implantable loop recorder (ILR) A miniature device that is implanted, via a minimally invasive procedure, under the skin to continually record your heart rhythm. Typically used when other tests, such as an ECG, have not identified an arrhythmia in the presence of continued symptoms.

MULTIDISCIPLINARY TEAM (MDT) A team of healthcare professionals that includes different disciplines (e.g., doctors and nurses) and specialisms (e.g. cardiologist and neurologist).

PACEMAKER A small device implanted under the skin that produces electrical impulses to treat an abnormal heart rhythm.

PALPITATION = A rapid noticeable heartbeat, which can be a sign of an arrhythmia.

POSTURAL TACHYCARDIA SYNDROME (POTS) An abnormal response by the autonomic (involuntary) nervous system when changing to an upright position. It is defined as a persistent increase in heart rate of over 30 beats per minute (or higher than 120 bpm) when standing upright.

REFLEX (VASOVAGAL) SYNCOPE A transient condition resulting from an abrupt dysfunction of the autonomic nervous system, which regulates blood pressure and heart rate.

SMARTPHONE-BASED [ECG/EKG] EVENT RECORDER a device (for example, AliveCor/Kardia) that uses a smartphone (or tablet) app to perform an ECG, which can either be recorded via the smartphone's camera or via a small hand-held machine.

SYNCOPE A sudden temporary loss of consciousness (more commonly known as a faint) that is the result of reduced blood flow to the brain.

SUPRAVENTRICULAR TACHYCARDIA An abnormally fast heart rate (resting heart rate above 100 beats per minute) that arises from the upper chambers of the heart (the atria).

TACHYCARDIA An abnormally fast heart rate over 100 beats per minute.

TILT TABLE TEST An autonomic test used to induce an episode whilst connected to heart and blood pressure monitors.

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