Management of Vasovagal Syncope

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Seriousness		Frequency	
Minor		Common	
Minor to Moderate	X	Occasional	
Moderate		Infrequent	X
Serious		Rare	
Major		Very rare	

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Abstract

Vasovagal syncope is a common, benign condition that can be distressing to both the patient and the practitioner. It can be triggered by blood or needle phobia and pain and, although there are no specific statistics due to lack of reporting, is likely to have a higher incidence in medical aesthetic practice due to the types of procedures undertaken. It is essential that practitioners can identify the symptoms and signs of vasovagal syncope, provide appropriate management, and mitigate risk as much as possible. Practitioners also need to be aware of other causes of syncope which may need further investigation and management.

Keywords

Syncope, Vasovagal, Reflex Syncope, Cardiac Syncope, Orthostatic Syncope, Faint, Transient Loss of Consciousness, Aesthetic Complications Expert Group World.

Definition

Vasovagal syncope, also known as fainting, is a brief loss of consciousness due to transient global cerebral hypoperfusion characterised by rapid onset, short duration and spontaneous and complete recovery[1]. Syncope is classified into three groups: reflex/vasovagal syncope, syncope due to orthostatic hypotension and cardiac syncope[2].

Introduction

Vasovagal Syncope, also known as neurocardiogenic syncope or a “simple faint” is a temporary loss of consciousness triggered by a neurological reflex (stimulation of the vagus nerve) that results in an episode of systemic hypotension. This is characterised by either a sudden dilation of the blood vessels in the legs or a very slow heart rate (bradycardia) or both[3,4].

As the heart rate slows and blood vessels in the legs dilate, blood pools in the legs which results in a lowering of blood pressure. The fall in blood pressure and slowed heart rate reduces blood flow to the brain, resulting in a faint[2].

Vasovagal syncope is a type of **reflex syncope** mediated by emotional, situational, or orthostatic stress (prolonged standing or when in a crowd or a hot place)[5] and is typically preceded by a prodrome of autonomic activation such as fast heart rate, sweating, pallor and nausea[2]. Typically, symptoms have a rapid onset, short duration with a spontaneous and complete recovery[2]. The distinction between a vasovagal syncope and other classifications of syncope is essential to establish as prognosis and treatment options vary considerably[6]. Vasovagal syncope can occur at any age, but it is much more common in adolescents and young adults than in older people[3].

This article offers guidance on the management of a vasovagal syncope event in the context of medical aesthetic practice and highlights the importance of differential diagnosis. Vasovagal syncope is considered a benign condition. It is well documented in the literature that the greatest risk to the patient is not from the condition or related symptoms but the risk of falls and subsequent injuries that may ensue[1,2,3,4].

Incidence

Epidemiological studies report that vasovagal syncope is the most frequent cause of syncope in any setting and age

group, representing 21% of all syncope in the general population[1]. Furthermore, 35% - 48% of syncope presenting to the emergency department are vasovagal in origin[2]. Orthostatic hypotension presents in around 15% of people, cardiac arrhythmias in 10% and structural heart disease as the cause of syncope in 5%[7].

The true incidence of vasovagal syncope is difficult to ascertain due to variation in definition, differences in population prevalence and under reporting[2]. Vasovagal syncope is an understated event that can arise in the practice of medical aesthetics[6].

Causes of Vasovagal Syncope

Common triggers of vasovagal syncope (emotional, orthostatic, and situational) include:

- Sudden severe pain
- Venepuncture
- Emotional distress/anxiety
- Blood phobia/injury phobia
- Belonephobia (fear of needles)
- Extremely difficult defaecation or urination
- A severe bout of coughing
- Standing for a long period of time
- Warm, crowded places
- Excessive alcohol or substance use

If a fainting episode follows any of these events, vasovagal syncope is almost certainly the cause[3].

There is a further type of syncope within the classification of **reflex syncope** known as **carotid sinus hypersensitivity syncope**. In this condition dizziness, presyncope or syncope may be precipitated by any manoeuvre which causes mechanical stimulation of the carotid sinus, such as turning the head, looking up, or wearing a tight collar[8]. Moreover, although rare, it is recognised that this type of syncope can be caused by a tumour compressing the carotid sinus[4].

Symptoms of Vasovagal Syncope

Pre vasovagal syncope symptoms include:

- Pallor/Pale skin
- Light-headedness
- Tunnel vision
- Nausea
- Feeling warm
- Cold, clammy sweating
- Yawning
- Blurred vision

During a vasovagal syncope - as well as loss of consciousness, a patient may also experience:

- Jerky abnormal movements
- A slow weak pulse
- Dilated pupils
- Urinary incontinence

Characteristics of Vasovagal Syncope

Vasovagal syncope almost always occurs when the patient is standing or sitting upright (when pooling of blood in the legs can occur) and virtually never happens when lying down.

Patients who have a vasovagal syncope episode usually regain consciousness quickly. However, if the patient stands up too soon after fainting, there is an increased risk of fainting again within 15 to 30 minutes.

If a person who suffers vasovagal syncope is held upright by a well-meaning bystander, the

unconsciousness can be very prolonged. This is a potentially dangerous situation, whilst being held upright, the brain is not being adequately perfused with blood.

Pathophysiology of Vasovagal Syncope

Vasovagal syncope occurs when a reflex triggered by stimulation of the vagus nerve causes blood vessels in the legs to dilate, resulting in a significant volume of blood to pool in the legs. This pooling is often accompanied by slowing of the heart rate, a subsequent drop in blood pressure (hypotension) and fainting[3].

The vagus nerve, also known as the tenth cranial nerve, is responsible for lowering the heart rate. When the vagus nerve is stimulated, excess acetylcholine is released, the heart rate slows and the blood vessels dilate, making it harder for blood to defeat gravity and be pumped back up to the brain[9]. These findings support how a temporary decrease in blood flow to the brain can result in a syncopal episode.

Prodromata

The loss of consciousness in patients with vasovagal syncope may be preceded by prodromata such as profuse sweating, light headedness, blurred vision, headache, yawning, heart palpitations and paraesthesia (pins and needles)[10]. These symptoms typically present when the patient is in an upright position, however, they would resolve almost immediately if the patient assumed the supine position[3].

After an episode of vasovagal syncope, many people will feel terrible for a few hours or even for the next few days, or longer[6]. During the postdrome period they commonly experience extreme fatigue, nausea, dizziness, and loss of appetite[3,18].

It is therefore crucial to ensure that the patient has made a complete recovery post vasovagal syncope before leaving the medical aesthetic clinic. There is risk of a further faint occurring within 30 minutes of the first syncope if the patient stands up too soon. Driving a car before full recovery could result in catastrophic consequences. The practitioner may consider arranging alternative transport home for the patient.

Diagnosis of Syncope

Given the characteristic features described and the situational nature of the condition, the medical aesthetic practitioner should be able to make an accurate diagnosis by reviewing the symptoms, taking a detailed medical history, medication history, family history and history of the sequence of events leading to the faint[3]. Clinical history taking is the cornerstone of diagnosing patients presenting with a transient loss of consciousness[11]. There should be no clinical features of other non-syncopal causes of loss of consciousness present, such as seizure or head trauma[12].

Adequate history taking reveals the clinical features associated with a syncopal event that are important to differentiate the different causes of syncope[13]. The absence of certain or suspected heart disease excludes a cardiac cause of syncope[14]. Drug induced (mainly diuretics and vasodilators) autonomic failure is the most frequent cause of orthostatic hypotension[1] (a fall in blood pressure when a person stands up from sitting or lying down).

In the context of a patient experiencing syncope whilst undertaking a medical aesthetic procedure, it will be assumed that the practitioner is present during the event; therefore, an accurate and reliable witness account is available, which will help to support the clinical diagnosis.

Differential Diagnosis (non-syncopal)

Transient loss of consciousness is usually due to syncope, other possible causes are[9]:

- Hypoglycaemia
- Falls/Trauma
- Epilepsy
- Narcolepsy
- Dizziness or vertigo
- Alcohol/drug abuse
- Transient Ischaemic attacks/CVA
- Psychogenic pseudo syncope

It is pertinent that medical aesthetic practitioners can differentiate a vasovagal syncope from an epileptic seizure. It is not widely recognised that limb twitching, rolling of the eyes and urinary incontinence can be features of a vasovagal syncope, it is often assumed that these features denote a seizure[15]. Convulsive movements occur in vasovagal syncope when cerebral neurones are irritated by anoxia, due to lack of oxygenated blood perfusing the brain[16]. This is more likely to occur if loss of consciousness is prolonged by failure to position the patient supine with legs elevated. The potential for convulsions to occur, supports that vasovagal syncope in medical aesthetic practice is an understated event[6]. It is often necessary to administer oxygen as well as monitoring the patient's level of consciousness, heart rate and blood pressure before safe discharge from the clinic.

Syncope is overall much more common than epilepsy[16]. Reflex syncope affects as many as 40% of the general population but epilepsy affects only 1 – 2%, hence many misdiagnoses of epilepsy may probably occur because of syncope[17].

Characteristics of different types of syncope

Vasovagal:

- Occurs under warm or crowded conditions.
- Associated with emotional distress, pain, or fear.
- Prodrome of light-headedness, dizziness, blurred vision, pallor, feeling hot or cold, yawning.
- May occur after exertion.
- Brief disorientation following event, possibly accompanied by nausea, vomiting and fatigue.
- History of recurring syncope.
- No history of heart disease.

Situational:

- Event occurs during coughing, urinating, defaecating, laughing or following a meal or post exercise.

Carotid Sinus hypersensitivity:

- Patient older than 40 years.
- Event occurs with head movement, during shaving or while wearing a tight collar.

Orthostatic Hypotension:

- Occurs with sudden change in posture or when standing up after prolonged sitting.
- Pain in "coat-hanger distribution" of shoulders and neck following event.

- History of diabetes, alcohol use, Parkinson's disease, Lewy body dementia, amyloidosis, uraemia.
- Newly initiated or adjusted medications that can affect blood pressure.
- Recent history of vomiting or diarrhoea.

Cardiac Syncope (arrhythmic disorders and structural heart disease):

- Occurs during exertion or when patient is supine.
- Accompanied or followed by chest pain or dyspnoea.
- History of heart disease.
- Abnormal ECG findings.
- Family history of sudden cardiac death.

Vasovagal Syncope in Medical Aesthetic Practice

Medical aesthetic practice incorporates procedures that may incite pain, anxiety, the sight of blood and most certainly injections with needles. Simply being in a "medical" situation can trigger a vasovagal response. In clinical practice the key factor in minimising the occurrence of a vasovagal syncope is to ensure a detailed medical history is elicited pre-treatment. Gathering of this essential data will provide the practitioner with the ability to evaluate the risk stratification.

Previous episodes of vasovagal syncope are not an absolute contraindication to undertaking a medical aesthetic procedure, however, awareness of the previous history and risk will alert the practitioner to carefully monitor for signs and symptoms of prodromata during the procedure. It is pertinent to monitor all patients during procedures for potential syncope, a first episode could result from first exposure to an aesthetic treatment.

Although needle or blood-injury phobia is the probable trigger for most vasovagal events within medical aesthetic practice, instances of relative dehydration i.e. after a viral illness, after exercise, after a hot shower or early in the morning, will increase the likelihood of a syncope occurring in predisposed individuals[3].

If a patient has a history of vasovagal syncope and the known trigger is a medical situation or a needle or blood-injury phobia, then a clinical decision to treat or not to treat must be made in the interest of patient safety and wellbeing[6]. Each patient history will be assessed individually to evaluate the risk versus benefit ratio. Patients often fail to provide accurate information about previous syncopal events because they fail to link the relevance of previous experiences with the forthcoming aesthetic procedure[6]. Some patients who have a history of syncope when in "medical" situations genuinely believe they will not have a vasovagal episode during a medical aesthetic procedure. However, it is recognised in the literature that trying to "fight off" an impending episode by forcing yourself to remain upright and willing yourself not to faint almost never works out well[3].

Needle and Blood-Injury Phobia

Those who suffer from vasovagal needle phobia, fear the sight, thought, or feeling of needles or needle like objects[18]. Belonephobia (fear of needles) is recognised in the Diagnostic and Statistical Manual of Mental Disorders (4th edition) as a specific phobia[19]. It has been reported that many people who suffer from fainting during needle related procedures report no conscious fear of the needle itself, but a greater fear of the

vasovagal syncope reaction that ensues[19]. Furthermore, it has been highlighted that in many patients with a phobia of needles, as well as patients with a broader range of blood-injury phobias, an initial episode of vasovagal syncope during a procedure may be the primary cause of the phobia rather than any basic fear of needles[19].

Management of Vasovagal Syncope

People who have had one or two episodes of vasovagal syncope are frequently able to recognise the warning symptoms[3]. If the prodromata is recognised, they can prevent a faint by simply lying down and elevating their legs.

A single episode of syncope is not usually serious, however, if blurred vision, chest pain, confusion, difficulty talking, shortness of breath or irregular heartbeat are present prior to fainting, a referral is appropriate for further investigations[3]. Adults with clear vasovagal features should not be routinely referred, even if there is brief associated limb jerking[20].

Most patients who experience a vasovagal syncope require only an explanation, reassurance, and education regarding the benign nature of the problem and avoidance of triggers[5].

Prompt assessment and quick recognition by the practitioner of the signs and symptoms of pre-syncope will allow for a rapid response. Laying the patient flat and elevating the legs should avert a vasovagal syncope 100% of the time[3].

Additional precautions (especially if the patient has a history of vasovagal syncope) should include, ensuring that the patient has eaten and is well hydrated (ask patients when they have last eaten prior to treatment as low blood sugar is a contributing risk factor for a vasovagal episodes), that the treatment room is a comfortable temperature and that a glass of water is to hand. Furthermore, it may be necessary to have someone available in the clinic to assist with laying the patient in a supine position with legs elevated. A fan can also be helpful in relieving prodromal symptoms, further reducing the risk of syncope.

Avoidance Strategies

It is documented that some patients can prevent or delay an episode of vasovagal syncope by engaging in muscle tensing exercises. These exercises include crossing the legs whilst tensing the leg, abdominal and buttock muscles. Moreover, tensing the arms with clenched fists or squeezing rubber balls are also techniques thought to reduce blood vessel dilation and increase the amount of blood being returned to the heart[21]. Leg crossing produces a rise in cardiac output and blood pressure, while muscle tensing causes an increase in heart rate and an additional rise in blood pressure[22].

Conclusion

Vasovagal syncope is a common benign condition, it is a symptom, not a disease. It is important that the medical aesthetic practitioner can clearly identify and distinguish between a vasovagal syncope and other causes of syncope as prognosis and treatments are very different. Vasovagal syncope has the potential for considerable morbidity due to risk of physical injury during the event. The best way to avoid a vasovagal

syncope is to avoid situations that trigger the event. The prognosis of a vasovagal syncope is excellent. However, syncope episodes can have a considerable impact on quality of life because of the unexpected nature and fear of recurrences[13].

Management of Vasovagal Syncope

ACE Group World have produced a series of evidence based and peer reviewed guidelines to help practitioners prevent and manage complications that can occur in aesthetic practice. These guidelines are not intended to replace clinical judgement and it is important the practitioner makes the correct diagnosis and works within their scope of competency. Some complications may require prescription medicines to help in their management and if the practitioner is not a prescriber or not familiar with the medication, the patient should be appropriately referred. Informing the patient's General Practitioner is considered good medical practice and patient consent should be sought. It may be appropriate to involve the General Practitioner or other Specialist for shared care management when the treating practitioner is not able or lacks experience to manage the complication themselves. Practitioners have a duty of care and are accountable to their professional bodies and must act honestly, ethically, and professionally.

About the author

Helena Collier is Clinic Director of Skintalks Medical Aesthetics (Scotland) and the former Consultant Editor of the Journal of Aesthetic Nursing (2011–2014). Helena entered the field of Aesthetic Medicine 14 years ago after a very long and rewarding career within the NHS spanning more than 25 years. She is passionate about education, ethics, and clinical standards of practice. Helena has had over 40 clinical papers published and has been invited to speak nationally and internationally at major conference events. Helena is a previous member of the Allergan Medical Faculty and is currently an Innovative Board Member with Merz Aesthetics. Helena has been an educator and trainer across the UK for many years.

She holds a Graduate Diploma in Aesthetic Medicine (2009) and was also awarded an MSc in Aesthetic Medicine from the prestigious Queen Mary University London (2018).

Aesthetic Complications Expert Group World Protocol for Vasovagal Syncope

TRANSIENT LOSS OF CONSCIOUSNESS (TLOC)

SYNCOPE

ORTHOSTATIC

Postural Hypotension

Consider medical cause. Refer to A&E if urgent or to GP if non-urgent

CARDIAC

Arrhytmias
Structural heart disease

Consider medical cause. Refer to A&E if urgent or to GP if non-urgent

VASOVAGAL

Reflex syncope
Emotional
Situational
Phobia

Symptoms

Yawning • Light-headedness • Nausea
Tunnel vision • Blurred vision • Feeling warm
Sensation of passing out

Signs

Pallor/Pale skin • Cold Clammy Sweating • Thin, thready pulse • Low blood pressure

Keep the patient safe • Stop treatment • Reassure the patient • Lie the patient supine • Elevate the legs • Place head down • Loosen ties or tight clothing around the neck
Check pulse • Airway, Breathing and Circulation (ABC)

CONVULSIONS/ HYPERTONIC

Convulsions can occur if there is a delay in laying the patient flat.
If there is muscle hypertonicity or clonus, this may be caused by hyper-ventilation and the patient should be instructed to slow their breathing, hold their breathe or re-breathe into a paper bag

RADIAL PULSE PRESENT

Monitor pulse and BP. Administer Oxygen if available

Recovery typically occurs within a few minutes

Patient should remain supine for 15 to 30 minutes.
If necessary, arrange patient to be transferred home safely

RADIAL PULSE ABSENT

Check Carotid Pulse, if absent, call for help • Start Resuscitation
Monitor Pulse and Blood Pressure
Administer Oxygen if available

If the Radial Pulse does not return within acceptable time or there are other clinical concerns, call 999.

NON-SYNCOPE

If possible, identify cause of TLOC.

Assess health status

Airway, Breathing, Circulation. Monitor

Refer to A&E if urgent or to GP if non-urgent

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