

## 9. Practical Instructions for section 5.2: treatment of reflex syncope

### 9.1 European Society of Cardiology information sheet for patients affected by reflex syncope

This information sheet has been written for patients (and their relatives and carers) who have been diagnosed with VVS. It is intended to explain their diagnosis and treatment.

#### What is syncope?

Syncope is one of several conditions in which a person loses consciousness for a short time, usually only a minute or two.

Syncope is caused by a reduction in the flow of blood to the brain. The brain then stops working, the person loses consciousness and falls, and will not know later what happened during that time.

There are several causes of syncope, such as problems with blood pressure or the heart, but vasovagal syncope (VVS) is the most common cause: one in four people will have at least one attack of VVS during their lives, but only 1 in 20 people will have at least five attacks, and even fewer will have many more attacks. Sometimes the diagnosis of VVS is easy, but sometimes it is not. In the latter, the attacks may at first look like epileptic seizures or a heart problem, in which case the person is seen by a neurologist or cardiologist who usually orders tests to investigate the brain and the heart.

#### The diagnosis of VVS

The diagnosis of VVS rests on specific clues from history taking, meaning that your doctor asks you what triggers the attacks and what happens to you during them. Typical triggers are pain, emotion, seeing blood or having a blood sample taken, and standing for some time. Other important clues are feeling nauseous, starting to sweat, or turning very pale before the attacks. During the attacks, people fall and, if they were upright, can hurt themselves. There can be a few movements of the face and limbs and the person may become incontinent. The unconsciousness typically lasts less than a minute and then the person quickly becomes fully conscious. However, many people feel very tired after the attack, and children especially may fall asleep. These clues are the most important evidence that a person has VVS.

A 'tilt table test' can be used to test for VVS. This test tries to provoke an attack, so that doctors can monitor your blood pressure and heart rate during an attack and ask whether the attack is the same as a spontaneous one.

#### What happens in the body during VVS?

VVS is brought about by a brain reflex. When triggered, the reflex affects the circulation in two ways. First, blood vessels in the body open too widely, blood moves down in the body, and blood pressure drops. Second, the brain may 'tell' the heart to slow down and even to stop temporarily (this is not a heart disease, but a healthy heart receiving the wrong instruction). Either way, the circulation of blood decreases. The brain is affected first because it needs a lot of blood and because it is located at the top of the body, making it a more difficult place to pump blood to.

Consciousness is lost when the brain stops working, and then the person falls down. However, lying down helps to get blood back to the brain and consciousness is quickly restored. This explains why lying down helps to prevent fainting: it helps to restore blood pressure and blood flow to the brain.

It is not known why some triggers, such as seeing blood, prompt the reflex. We do know that anything that reduces blood pressure or the amount of water in the body makes it easier to trigger the reflex, such as not drinking much, eating very little salt, sweating a great deal, diarrhoea, some drugs, warm places, and simply standing.

#### Preventing VVS

There are several things that you can do to prevent syncope. If you feel a spell coming on, lying down is best, with your feet in the air. Obviously, you cannot lie down everywhere, in which case you can sit down or do 'counter manoeuvres' (tricks that raise blood pressure). People who are prone to VVS should drink plenty of fluids and eat salt, as salt is needed to keep the water in the body (unless there are medical reasons to cut down on salt!). In most patients, these simple measures allow them to control the fainting tendency. In rare cases, doctors may try drugs to increase the volume of blood and blood pressure, and in very rare cases a pacemaker may be needed. This is a last resort when nothing else works and when it has been proven that the reflex makes the person's heart stop temporarily.

#### Box. Actions to take to avoid an impending attack of reflex syncope

- (1) When you feel symptoms of syncope coming on, the best response is to lie down. If this is not possible, then sit down and do counter manoeuvres. The final warning symptom is when everything goes dark and you lose vision: then you only have seconds in which to prevent syncope.
- (2) Your doctor will have shown you how to do the counter manoeuvres. They all concern tensing large muscles in the body. One way is to press the buttocks together and straighten the knees forcefully; another is to cross your legs and press them together over their entire length. Others make fists and tense the arm muscles.
- (3) Drink around 2 L of fluid a day and do not use salt sparingly (unless there are medical reasons not to!). A simple way to tell whether or not your fluid intake is high enough is to check the colour of your urine: if it is dark yellow there is little fluid in your body, so try to keep it very lightly coloured.
- (4) Inform those in your immediate surroundings what to do during a spell: in typical spells there is no need to call a doctor or an ambulance. Of course, if you hurt yourself in the fall, this may change.

### 9.2 Counter-pressure manoeuvres

The most commonly used manoeuvres are leg crossing, hand gripping, and arm tensing<sup>186,192</sup> (Web Figure 35). Patients with known susceptibility to neural reflex or orthostatic faints should be instructed to use these manoeuvres as preventive measures when they experience any



**Web Figure 35** Most common counter-pressure manoeuvres: leg crossing, hand gripping, and arm tensing.

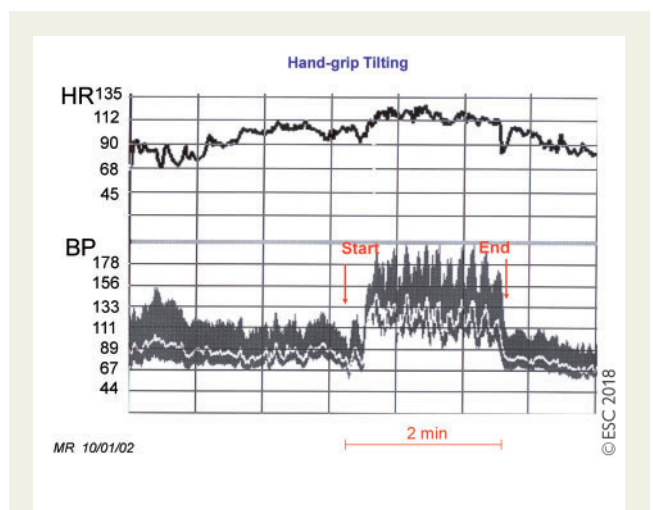
symptoms of impending fainting. Whichever of the manoeuvres is employed, they can increase blood pressure rapidly and significantly, thus aborting syncope for a sufficient period to permit the affected person to achieve a safe position (e.g. if driving, pull the car to the side of the road; if standing, sit or lie down) (Web Figure 36).

**Physical manoeuvres for interrupting reflex or orthostatic faints (Web Figure 35):**

*Leg crossing.* Consists of leg crossing combined with maximum tensing of leg, abdominal, and buttock muscles for the maximum tolerated time or until complete the disappearance of symptoms. This procedure is sometimes described in the literature as leg crossing with muscle tensing. Leg crossing alone has also been shown to be useful but is less powerful in terms of preventing hypotension.

*Hand gripping.* Consists of the maximal squeezing of a rubber ball (approximately 5–6 cm in diameter) or a similar soft object taken in the dominant hand, for the maximum tolerated time or until the complete disappearance of symptoms (Web Figure 36).

*Arm tensing.* Consists of the maximum tolerated isometric contraction of the two arms achieved by gripping one hand with the other and at the same time abducting (pulling away) the arms for the maximum tolerated time or until the complete disappearance of symptoms.



**Web Figure 36** Hand gripping. The start of the manoeuvre causes a rapid rise in blood pressure, which persists as long as the contraction is maintained; initially HR slightly increases and then slightly decreases. BP = blood pressure; HR = heart rate.