

Understanding *Secondary prevention of stroke*

A DISCUSSION GUIDE FOR SURVIVORS AND CAREGIVERS

WHAT IS A STROKE?

A stroke is a serious medical emergency that happens when part of the brain does not receive enough blood. This is usually caused by a blocked vessel or bleeding in the brain. Without oxygen and nutrients, brain cells can be damaged or die, and the effects can depend on which area is affected and the severity of the interruption in blood flow.

WHAT IS A RECURRENT STROKE?

A recurrent stroke, also known as a secondary stroke, occurs when someone who has already experienced a stroke or a transient ischemic attack (TIA) suffers another one – whether it is a second, third or later event. **Recurrent strokes are more likely to result in severe disability or death compared to the first one**, making their prevention and management critically important.

TYPES OF STROKE



ISCHEMIC STROKE

is the most common type of stroke. It occurs when one or more blood vessels supplying the brain become narrowed or blocked, usually by a blood clot. As a result, brain cells do not get enough oxygen and nutrients.



HAEMORRHAGIC STROKE (BRAIN HAEMORRHAGE)

occurs when a blood vessel in the brain leaks or ruptures, causing bleeding in or around the brain. It is often linked to weakened blood vessels, which can result from conditions such as aneurysms (a bulge in the vessel wall) or abnormal connections between vessels (known as arteriovenous malformation – AVM).



TRANSIENT ISCHEMIC ATTACK (TIA)

is sometimes called a “warning stroke” or “ministroke”. It causes stroke-like symptoms that last from a few minutes to several hours – but never more than 24 hours. A TIA does not cause permanent brain damage, but it is a strong warning sign that a stroke may occur in the days and weeks that follow.



CRYPTOGENIC STROKE

is a type of stroke where the exact cause cannot be identified, even after thorough medical testing.

STROKE IS THE SECOND
LEADING CAUSE OF DEATH
WORLDWIDE, RESPONSIBLE
FOR AN ESTIMATED
7 million deaths
EACH YEAR



MORE THAN *80%*
OF STROKES ARE
preventable,
YET EACH YEAR, OVER
*1.8 million people**
IN EUROPE EXPERIENCE A
STROKE, WITH MANY AT RISK
OF A RECURRENT ONE

*BASED ON 2019 INCIDENCE



*~1 in 5 stroke
survivors WILL
HAVE ANOTHER STROKE
WITHIN 5 years*

WHAT DOES SECONDARY PREVENTION OF STROKE MEAN?

Secondary prevention of stroke refers to the steps taken to prevent recurrent strokes or TIAs. It involves a combination of lifestyle changes, managing risk factors, medical treatments and long-term follow-up strategies.

Recurrent strokes are often preventable. By working closely with your healthcare team and following your care plan, you can significantly lower your risk of another stroke and protect your long-term health.

CAUSES AND RISK FACTORS FOR A RECURRENT STROKE

Every stroke survivor has a unique set of risk factors. Understanding yours helps you and your healthcare team focus on prevention. Some can be managed (modifiable). Others cannot be changed (non-modifiable) — but all are important to know.

Risk factors fall into two categories:

Modifiable:

- ♥ HIGH BLOOD PRESSURE (HYPERTENSION)
- ♥ OVERWEIGHT AND OBESITY
- ♥ PHYSICAL INACTIVITY
- ♥ ALCOHOL
- ♥ ATRIAL FIBRILLATION (AFIB)
- ♥ HIGH LDL CHOLESTEROL OR TRIGLYCERIDES
- ♥ OBSTRUCTIVE SLEEP APNOEA
- ♥ SMOKING AND VAPING
- ♥ UNHEALTHY DIET
- ♥ ILLICIT OR STIMULANT DRUGS
- ♥ DIABETES

Non-modifiable:

- ♥ PRIOR STROKE, TIA OR HEART ATTACK
- ♥ RACE/ ETHNICITY
- ♥ HEREDITARY BLOOD CLOTTING DISORDERS
- ♥ INCREASING AGE
- ♥ SEX
- ♥ PATENT FORAMEN OVALE (PFO)
- ♥ FAMILY HISTORY OF STROKE
- ♥ HEART VALVE DISEASE

HAVING HAD A STROKE OR TIA *increases your risk* OF ANOTHER EVENT

IF YOU HAVE AFIB, YOUR RISK OF STROKE IS UP TO *5 times* HIGHER THAN SOMEONE WHO DOES NOT

PEOPLE WITH DIABETES HAVE *a significantly high risk* TO EXPERIENCE A RECURRENT STROKE COMPARED TO THOSE WITHOUT DIABETES

Many of these risk factors contribute to conditions such as **atherosclerosis (plaque buildup in the arteries)** or the formation of **blood clots**, both of which can block blood flow to the brain.



Stroke risk can be different for women. Certain factors, such as pregnancy-related complications, high blood pressure during pregnancy, oral contraceptives and hormone therapy, may increase stroke risk. Women are also more likely than men to experience migraine with aura and autoimmune diseases, which can also increase stroke risk.

WARNING SIGNS AND SYMPTOMS OF A RECURRENT STROKE

While stroke warning signs often happen suddenly, sometimes they can happen gradually, and may vary from person to person. The symptoms depend on which part of the brain is affected.

The following are the most common warning signs for a first or recurrent stroke, as well as for a TIA.



SUDDEN NUMBNESS OR WEAKNESS OF THE FACE, ARM OR LEG, especially on one side of the body



SUDDEN CONFUSION, TROUBLE SPEAKING OR UNDERSTANDING SPEECH



TROUBLE WALKING, including sudden dizziness, loss of balance, or lack of coordination



A SUDDEN SEVERE HEADACHE WITH NO KNOWN CAUSE (this is more common in haemorrhagic stroke)



TROUBLE SEEING WITH ONE OR BOTH EYES

The B.E. F.A.S.T.

ACRONYM CAN HELP YOU AND YOUR LOVED ONES REMEMBER AND RECOGNISE STROKE WARNING SIGNS

B



BALANCE LOSS

Is the person losing balance or has difficulty walking?

E



EYES

Are there sudden changes in vision? Is there double vision or sight loss?

F



FACE DROOPING

Does one side of the face droop or is it numb? Ask the person to smile. Is the person's smile uneven?

A



ARM WEAKNESS

Is one arm weak or numb? Ask the person to raise both arms. Does one arm drift downward?

S



SPEECH DIFFICULTY

Is speech slurred?

T



TIME TO CALL EMERGENCY SERVICES

A stroke is an emergency. Every minute counts. Call your local emergency number immediately. Note the time when any of the symptoms first appear.

DIAGNOSING A RECURRENT STROKE

A recurrent stroke is diagnosed using the same process as a first event, so as a stroke survivor, you may be familiar with most of these diagnostic tests.

Fast and accurate diagnosis is essential – not only to guide the right treatment, but also to protect the brain from further damage. When brain cells are deprived of oxygen, they can die quickly – which is why every minute counts.

At the hospital, this is what you and your family can expect:

- ♥ **INITIAL ASSESSMENT:** review of your medical history, physical and neurological examination, and an evaluation of possible risk factors
- ♥ **BLOOD PRESSURE CHECK**
- ♥ **BLOOD TESTS:** to check for blood sugar level, clotting ability, and signs of infection or inflammation

- ♥ **ADDITIONAL TESTS MAY INCLUDE:**
 - ♥ CT or MR angiography
 - ♥ Electrocardiogram (ECG or EKG)
 - ♥ Carotid ultrasound
 - ♥ Cerebral angiography
 - ♥ Echocardiogram (Echo)
 - ♥ Long-term heart EKG monitoring devices

TREATING AND MANAGING A RECURRENT STROKE

If a stroke is diagnosed early, doctors may be able to restore blood flow to the brain using emergency treatments such as **clot-dissolving medication (tPA)** or procedures like **mechanical thrombectomy** to remove the clot. These treatments aim to limit brain damage and improve recovery.

Once the immediate treatment is over, preventing another stroke becomes the main focus of your care. Your treatment plan will depend on the cause of your stroke and your individual risk factors.

Your healthcare team may recommend a combination of medications, lifestyle changes, and in some cases, medical procedures.





Medications – Possible medications that may be part of your treatment plan depending on your situation:

- ♥ **ANTITHROMBOTIC (ANTI BLOOD CLOTTING) MEDICATIONS** such as antiplatelet agents or anticoagulant agents
- ♥ **BLOOD PRESSURE MEDICATIONS**
- ♥ **CHOLESTEROL-LOWERING MEDICATIONS**
- ♥ **DIABETES MEDICATIONS**
- ♥ **HEART RATE AND RHYTHM MEDICATIONS**
- ♥ **ANTIDEPRESSANTS**, if needed, to support emotional wellbeing after stroke*



Tests and medical procedures – In some cases, doctors may recommend procedures to reduce stroke risk, such as:

- ♥ **CAROTID ARTERY PROCEDURES** (such as carotid endarterectomy or stenting) to treat narrowed arteries in the neck
- ♥ **HEART RHYTHM MONITORING DEVICES** to detect conditions such as atrial fibrillation



Lifestyle changes – They are an important part of preventing another stroke. Your healthcare team may recommend:

- ♥ **MAINTAINING HEALTHY BLOOD PRESSURE, BLOOD SUGAR AND CHOLESTEROL LEVELS**
- ♥ **FOLLOWING A HEART-HEALTHY DIET**
- ♥ **BEING PHYSICALLY ACTIVE WITHIN YOUR ABILITIES**
- ♥ **STOPPING SMOKING OR VAPING**
- ♥ **LIMITING ALCOHOL CONSUMPTION**
- ♥ **MAINTAINING A HEALTHY WEIGHT**
- ♥ **MANAGING STRESS AND PRIORITISING GOOD SLEEP**



***Depression and anxiety affect about 1 in 3 people in the first year after a stroke.**

QUESTIONS TO ASK YOUR DOCTOR

Engaging in open and meaningful discussions with your healthcare provider is essential in managing your risk of recurrent strokes. Here are some questions to guide your conversations and help you take an active role in your health:

- ✓ What caused my strokes?
- ✓ What is my risk of having a recurrent stroke?
- ✓ I have experienced TIAs but not a stroke—should I still be concerned about the risk of having a major stroke?
- ✓ What symptoms should I watch for, and when should I seek emergency care?
- ✓ What steps can I take to reduce my risk of another stroke?
- ✓ What medications do I need to take, and what are their benefits and potential side effects?
- ✓ What diet, exercise or lifestyle changes would you recommend for me?
- ✓ How often should I see you for follow-up care?
- ✓ Where can I access reliable information on preventing recurrent strokes?
- ✓ Are there support groups or programmes for stroke survivors that you recommend?



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