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A REVIEW ON NUTRITIONAL MANAGEMENT OF STROKE

M. Mohamed Shabi*[1], Sneha H. C.[2], Sneha S.[2], Supritha C.[2] and Surabhi N.[2]

[1]Department of Pharmacology, Faculty of Pharmacy, Ramaiah University of Applied Science, New BEL Road, MSR Nagar, Mathikere, Bengaluru 560054.

[2]Ikon Pharmacy College, No: 32 Bheemanahalli, Bengaluru, Karnataka 562109.

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***Corresponding Author**
Dr. M. Mohamed Shabi
Department of Pharmacology, Faculty of Pharmacy, Ramaiah University of Applied Science, New BEL Road, MSR Nagar, Mathikere, Bengaluru 560054.

ABSTRACT

A stroke occurs when a blood vessel in the brain bursts and bleeds or when the brain's blood supply is cut off. Because of the rupture or obstruction, blood and oxygen cannot reach the brain's tissues. The loss of blood flow to the brain damages brain tissues. Stroke symptoms manifest in the body parts controlled by the damaged areas of the brain, resulting in a variety of symptoms. The ischemic form of stroke is more common than the other two primary forms, accounting for 85% to 87% of stroke cases (hemorrhagic and non-hemorrhagic). The pathophysiology of the condition makes the role of dietary factors in stroke clear. Because ischemic strokes are caused by atherosclerosis, they are more common in people with high blood cholesterol levels, which are linked to dietary saturated fat and cholesterol, as well as low fibre intake, among other risk factors for cardiovascular disease. Diets high in saturated fat, salt, or potassium tend to increase the risk of hypertension, which in turn contributes to both ischemic and hemorrhagic stroke. A diet high in potassium, low in sodium, and high in fruits, vegetables, cereal fibre, and whole grains may reduce the risk of stroke. This review article revels about the nutritional management of stroke which is benefits for supportive therapy of stroke.

KEYWORDS: Stroke, Ischemic Stroke, Hemorrhagic Stroke, Allopathic Treatment, Nutritional Management.

INTRODUCTION

The "father of medicine," Hippocrates, identified stroke for the first time more than 2,400 years ago. The Greek word apoplexy, which means "struck down by violence," is what he

used to describe the illness. The word didn't always accurately explain what was going on within your brain, even while it did describe the abrupt changes that can happen after a stroke.[1] After conducting post-mortem exams on individuals who had died from apoplexy, Dr. Johann Jacob Wepfer, a pathologist and pharmacologist from Switzerland, found that apoplexy was caused by disruption of blood circulation to the brain in 1658. He determined that either brain bleeding or blood clots clogging the arteries was the cause of the disturbed blood flow to the brain.[2] A stroke happens when a blood vessel in the brain bursts and bleeds or when the blood supply to the brain is cut off. Blood and oxygen cannot reach the brain's tissues because of the rupture or obstruction. According to the Centers for Disease Control and Prevention (CDC) Trusted Source, stroke is a leading cause of death in the United States. Every year, more than 795,000 U.S. people have a stroke. Without oxygen, brain cells and tissue become damaged and begin to die within minutes.

There are three primary types of strokes

- A blood clot is involved in a transient ischemic attack (TIA), which normally resolves on its own.
- An arterial blockage brought on by a clot or plaque results in an ischemic stroke. The signs and problems of an ischemic stroke may persist permanently or linger longer than those of a TIA.
- A ruptured or leaking blood artery that penetrates into the brain is what causes hemorrhagic stroke.[3]

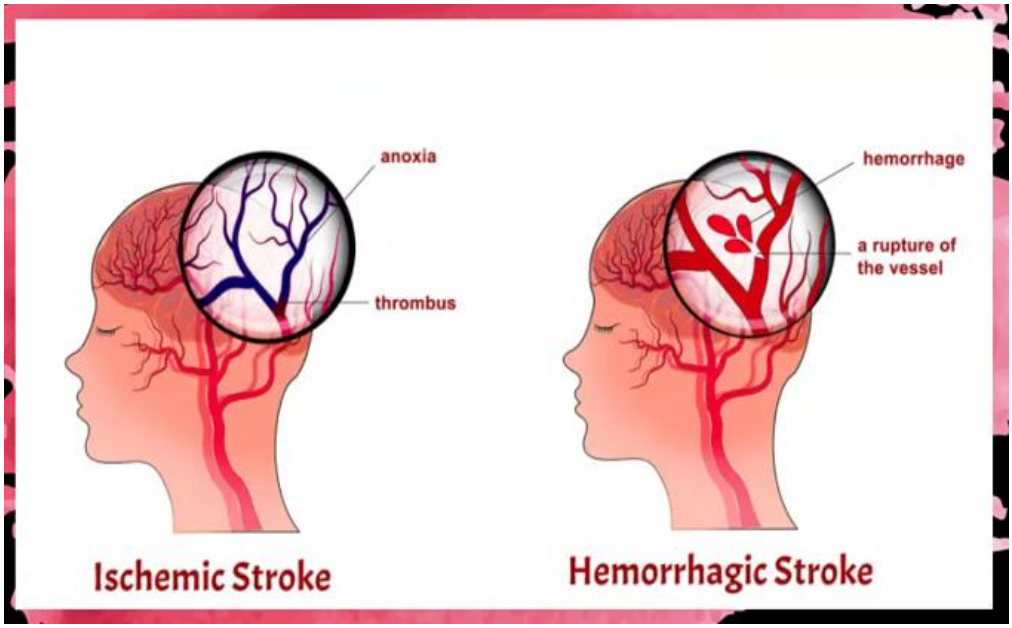

Figure 1: Types of stroke.

Stroke is the second leading cause of death globally. It affects roughly 13.7 million people and kills around 5.5 million annually. Approximately 87% of strokes are ischemic infarctions, a prevalence which increased substantially between 1990 and 2016, attributed to decreased mortality and improved clinical interventions. The second biggest cause of death worldwide is stroke. Each year, it affects 13.7 million people and kills about 5.5 million. The prevalence of ischemic infarctions, which account for about 87% of strokes, grew significantly between 1990 and 2016, which is attributed to lower mortality and better clinical interventions. The majority of strokes are caused by primary (first-time) haemorrhages, with secondary (second-time) haemorrhages accounting for between 10% and 25%.[4] In high-income countries, the incidence of stroke decreased by 42% between 1990 and 2016, whereas it more than quadrupled in low- and middle-income nations. The Global Burden of Disease (GBD) reports that although the prevalence of stroke has reduced, the age, sex, and location of those affected have led to an increase in the socioeconomic cost of stroke over time.[5] Stroke incidence that is dependent on age: Beyond the age of 55, the incidence of stroke doubles. Yet, a disturbing trend shows that between 1990 and 2016, the percentage of stroke cases worldwide among adults aged 20 to 54 rose from 12.9% to 18.6%. Nonetheless, throughout the same time period, age-standardized attributable death rates fell by 36.2%.[5,6,7]

Gender-specific stroke: The occurrence of stroke in men and women also depends on age. It is higher at younger ages in women, whereas incidence increases slightly with older age in men. The higher risk for stroke in women is due to factors related to pregnancy, such as preeclampsia, contraceptive use and hormonal therapy, as well as migraine with aura. Atrial fibrillation increases stroke risk in women over 75 years by 20 %.[7,8,9]

Socioeconomic variation: Due to limited hospital infrastructure and post-stroke care among low-income people, there is a significant inverse link between socioeconomic level and stroke.[10] An American case study revealed that those with higher socioeconomic position had access to more effective stroke therapies than those who were less fortunate.[11]

What happens in the brain during a stroke

The brain is the organ that manages our bodily activities, retains our memories, and generates our ideas, feelings, and verbal expression. In addition, the brain regulates a variety of bodily processes, including respiration and digestion. You need oxygen for your brain to function correctly. All of the areas of your brain receive oxygen-rich blood from your arteries. Brain

cells begin to die within minutes of a blockage in blood flow because they are unable to receive oxygen. The result is a stroke.[12]

Who does it affect

Anybody can have a stroke, from children to adults, but there are some people who have a greater risk than others. Strokes are more common later in life (about two-thirds of strokes happen in people over age 65). Other medical problems that raise the risk of stroke include hypertension (high blood pressure), hyperlipidemia (high cholesterol), type 2 diabetes, and a history of stroke, heart attack, or irregular heartbeats like atrial fibrillation.[13]

SYMPTOMS

The loss of blood flow to the brain damages tissues within the brain. Symptoms of a stroke show up in the body parts controlled by the damaged areas of the brain. Stroke symptoms can include:

- Paralysis
- Weakness in the arm, face, and leg, especially on one side of the body
- Trouble speaking or understanding others
- Slurred speech
- Confusion, disorientation, or lack of responsiveness
- Sudden behavioural changes, especially increased agitation
- Vision problems, such as trouble seeing in one or both eyes with vision blackened or blurred, or double vision
- Loss of balance or coordination
- Dizziness
- Severe, sudden headache with an unknown cause
- Seizures
- Nausea or vomiting.[3]

DIAGNOSIS

You might be subjected to several exams,

- **Physical examination:** Your doctor will do a variety of procedures you are already familiar with, such hearing the heartbeat and taking your blood pressure. To determine how a probable stroke may be affecting your nervous system, you will also have a neurological examination.

- **Blood exams:** You might undergo a number of blood tests, such as those to determine how quickly your blood clots, whether your blood sugar is too high or low, and whether you are infected.
- **CT scan (computerised tomography):** An accurate image of your brain is produced by a CT scan using a sequence of X-rays. A CT scan can detect tumours, ischemic strokes, brain tumours, and other disorders. A dye may be injected by doctors into.
- **Imaging with magnetic resonance (MRI):** A magnetic field and strong radio waves are used in an MRI to produce a precise image of the brain. Brain haemorrhages and ischemic stroke damage can both be found on an MRI. In order to observe the arteries and veins and highlight blood flow, your doctor may inject a dye into a blood vessel (magnetic resonance angiography or magnetic resonance venography).
- **Ultrasonography of the carotid:** In this test, sound waves produce precise images of the interior of the neck's carotid arteries. This test reveals blood flow in the carotid arteries as well as the accumulation of fatty deposits (plaques).[14]

CAUSES

A blocked artery (ischemic stroke) or a blood vessel leak or burst are the two basic causes of stroke (hemorrhagic stroke). Transient ischemic attacks (TIAs), which are brief interruptions in blood supply to the brain that don't persist long, can occur in some persons.

Ischemic stroke

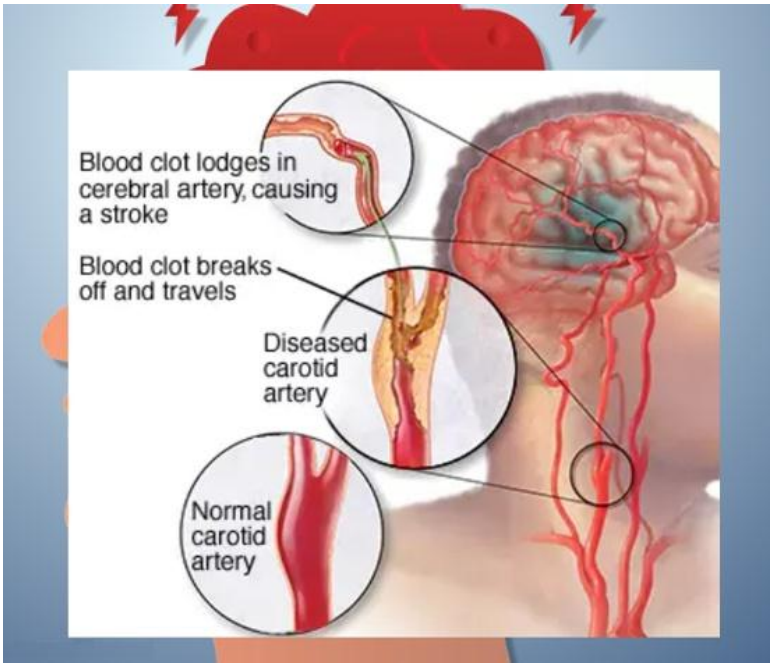

Figure 2: Ischemic stroke.

The most typical kind of stroke is this one. It occurs when the blood arteries in the brain narrow or block, significantly reducing the amount of blood flow (ischemia). Fat deposits that accumulate in blood vessels or blood clots or other debris that move through the bloodstream, typically from the heart, and lodge in the blood vessels in the brain cause blocked or restricted blood arteries. There is a need for more research, although preliminary findings suggest that COVID-19 infection may raise the risk of ischemic stroke.

Hemorrhagic stroke

When a blood vessel in the brain leaks or ruptures, hemorrhagic stroke happens. There are numerous disorders that damage the blood vessels and can cause brain haemorrhages. Hemorrhagic stroke risk factors include:

- Uncontrolled high blood pressure
- Overtreatment with blood thinners (anticoagulants)
- Bulges at weak spots in your blood vessel walls (aneurysms)
- Trauma (such as a car accident)
- Protein deposits in blood vessel walls that lead to weakness in the vessel wall

A less common cause of bleeding in the brain is the rupture of an irregular tangle of thin-walled blood vessels (arteriovenous malformation).

Transient ischemic attack (TIA)

A transient ischemic attack (TIA), also referred to as a ministroke, is a brief period of stroke-like symptoms. A TIA does not result in long-term harm. A TIA is brought on by a brief interruption in the blood flow to a portion of the brain, which could last only five minutes. A clot or piece of debris restricts or obstructs blood flow to a portion of the nervous system, similar to how an ischemic stroke happens. Even if you believe you had a TIA because your symptoms improved, seek emergency care. The symptoms alone cannot distinguish between a stroke and a transient ischemic attack (TIA). A TIA indicates that you may have a partially blocked or restricted artery going to your heart.[15]

RISK FACTORS

The major risk factors for stroke include:

- High blood pressure
- Diabetes

- Heart and blood vessel diseases: Conditions that can cause blood clots or other blockages include coronary heart disease, atrial fibrillation, heart valve disease and carotid artery disease.
- High LDL cholesterol levels
- Smoking

Age: A stroke can happen at any age, but the risk is higher for babies under the age of 1 and for adults. In adults, the risk increases with age.

Sex: At younger ages, men are more likely than women to have a stroke. But women tend to live longer, so their lifetime risk of having a stroke is higher. Women who take birth control pills or use hormone replacement therapy are at higher risk. Women are also at higher risk during pregnancy and in the weeks after giving birth. High blood pressure during pregnancy — such as from preeclampsia — raises the risk of stroke later in life.

Family history and genetic**:** Your risk of having a stroke is higher if a parent or other family member has had a stroke, particularly at a younger age. Certain genes affect your stroke risk, including those that determine your blood type. People with blood type AB (which is not common) have a higher risk.[16]

COMPLICATIONS

There are various types of stroke, and each one is associated with a particular set of problems. The types of strokes listed below, along with some of their typical complications:

Hemorrhagic Stroke (Bleeding)

Complications of hemorrhagic stroke may include:

- Blood clots (deep vein thrombosis or pulmonary embolism)
- Brain swelling
- Seizures
- Memory loss
- Vision and hearing problems
- Muscle weakness
- Bed sores
- Depression
- Risk of pneumonia

Ischemic Stroke (Clots)

Complications of ischemic stroke may include:

- Blood clots (deep vein thrombosis or pulmonary embolism)
- Urinary tract infections, or UTI
- Bowel and bladder problems
- Risk of pneumonia
- Muscle weakness
- Bed sores
- Mobility problems and falls

Transient Ischemic Attack (TIA)

Complications of TIA – also referred to as "mini-strokes" – may include:

- Blood clots (deep vein thrombosis or pulmonary embolism)
- Difficulty swallowing
- Urinary tract infections, or UTI
- Bed sores
- Mobility problems and falls.[17]

Seizures

Scar tissue develops in the brain after a stroke damages it. The electrical activity in the brain is disrupted by this scar tissue. A seizure may result from an interruption of the electrical activity. One of the most frequent side effects of an ischemic stroke is seizures, which afflict 22% of survivors.

Pneumonia

After a stroke, pneumonia is a significant source of morbidity and mortality. The most frequent cause of hospital readmission following a stroke, according to the Indiana University School of Medicine, is pneumonia. Stroke patients who have problems swallowing run the risk of aspirating food or liquids into their airways, which can result in pneumonia or a chest infection.

Cerebral Edema

Inflammation and swelling are both components of the body's normal response to injury. Edema is a term for swelling brought on by fluid retention. But, if brain edoema develops, it

may have serious consequences. Brain tissue death may occur as a result of cerebral edoema, which restricts the blood flow to the brain. One of the main side effects of an ischemic stroke is brain inflammation. Receiving medical attention as soon as stroke symptoms are noticed will lessen the possibility of suffering from severe brain edoema.

Bladder Problems

A stroke can result in a wide variety of bladder-related issues. The urge or need to urinate regularly will frequently be strong for stroke survivors. Functional incontinence is the inability of a stroke survivor to relieve themselves adequately due to inability to reach a restroom or take off garments. Reflex incontinence, which affects certain stroke survivors, causes them to leak urine without being aware of it. It is therefore referred to as urine retention when a stroke survivor is unable to completely empty their bladder on their own. If this happens, the person will probably need a catheter to make sure the bladder is completely emptied.

Falls and Accidents

Falls and accidents are inevitably made more likely by common post-stroke impairments such imbalance, sensory impairment, weakness, vision issues, and lack of coordination. Regaining stability and lost function can help lower this risk with the use of physical and occupational therapy. To help prevent falls and accidents while carrying out regular daily tasks, assistive equipment can be acquired as well as home changes.[18]

PATHOPHYSIOLOGY

Ischemia or haemorrhage are the main causes of the decrease in blood flow that happens during a stroke. The ischemic form of stroke, which accounts for 85% to 87% of stroke cases, is more prevalent than the other two primary forms (hemorrhagic and non-hemorrhagic). When a brain artery becomes blocked, the afflicted area receives less blood flow, which results in an ischemic stroke. Occlusion can be brought on by a number of illnesses, the most frequent of which being cardioembolism, small-vessel disease, and large-artery disease. 4 thrombosis and embolism are two more generic categories that could be used to describe the aetiology of an ischemic stroke, with thrombosis happening more commonly. A thrombus forms in a vessel and blocks blood flow to the brain from that area, resulting in a thrombotic stroke. A brain blood artery that gets weak and bursts causes hemorrhagic stroke. The surrounding tissue is harmed as a result of the blood seeping into other areas of the brain. Depending on where the bleed occurred, hemorrhagic stroke might be categorised in one of

two ways. A blood artery that is ruptured between the surface of the brain and the skull causes subarachnoid haemorrhage. The rupture of saccular aneurysms near the base of the brain accounts for 85% of subarachnoid haemorrhages. Small-vessel disease is most frequently the cause of intracerebral haemorrhage, which happens when a blood artery inside the brain bursts. There may be intracerebral haemorrhages. Further categorized as lobar hemorrhages (involving the cortex) and *subcortical* hemorrhages (involving the area beneath the cortex).[19]

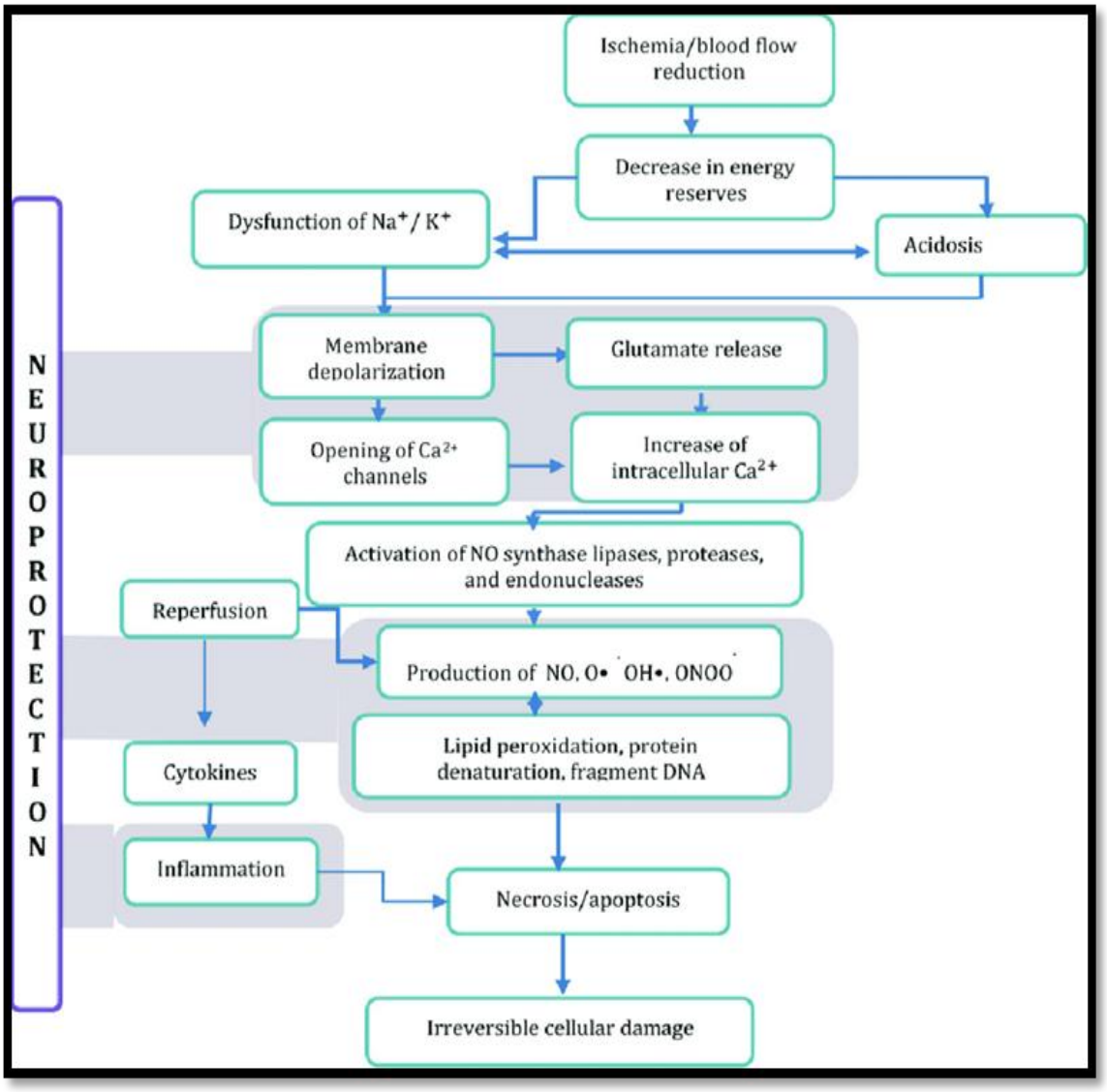

Figure 3: Pathophysiology of stroke.

ALLOPATHIC REMEDIES

Medications for stroke aim to:

- Help break up blood clots

- Reduce blood pressure and cholesterol levels
- Help prevent blood clots

Table 1: Classification of drugs.

Type	Examples
Tissue plasminogen activator (tPA)	tPA injection, or Alteplase
Antiplatelets	Aspirin Dipyridamole Clopidogrel Ticagrelor
Anticoagulants	Warfarin Rivaroxaban Dabigatran Apixaban Edoxaban
Statins	Simvastatin Atorvastatin Lovastatin Fluvastatin Pravastatin Pitavastatin Rosuvastatin
Blood pressure medication	Calcium channel blockers, including: Bepridil Diltiazem hydrochloride Nisoldipine Verapamil hydrochloride Felodipine Isradipine Nicardipine Amlodipine besylate Nifedipine Angiotensin-converting enzyme (ACE) inhibitors, including: Trandolapril Captopril Enalapril maleate Ramipril Fosinopril sodium Lisinopril Moexipril Perindopril Quinapril hydrochloride Benazepril hydrochloride Other blood pressure medications include:

	Diuretics Beta-blockers Angiotensin II receptor blockers Vasodilators Alpha blockers [20]

NUTRITIONAL MANAGEMENT

The pathophysiology of the condition makes the contribution of dietary variables to stroke clear. Because ischemic strokes are brought on by atherosclerosis, they are more frequent in people with high blood cholesterol levels, which are in turn closely related to dietary saturated fat and cholesterol as well as low fibre intake, among other factors that increase the risk of cardiovascular disease. Similar to how high saturated fat, salt, or low potassium diets tend to raise risk for hypertension, which in turn contributes to both ischemic and hemorrhagic stroke. Stroke risk may be decreased by eating a diet high in potassium, low in sodium, and full of fruits, vegetables, cereal fibre, and whole grains.[21]

Aims of nutrition therapy

– Primary and secondary prevention of stroke.

– Regulation of elevated blood pressure, elevated levels of blood sugar and lipids, overweight.

– Healthy diet (use of unsaturated fatty acids, cereals, fruits, vegetables, fish, olive oil).

Nutrition

Many epidemiological studies have demonstrated that diet has an impact on stroke pathogenesis, and that dietary modifications can prevent stroke. The Mediterranean diet, which includes olive oil, canola oil, omega-3 fish oil, balsamic vinegar, vitamins, and antioxidants, is advised for stroke prevention while lowering intake of Tran's fats, harmful animal fats, and cholesterol. Alpha-linolenic acid is used in place of animal fat in this diet, along with whole grains, fibre, and phytoestrogens in place of other derivatives. This diet is distinguished by the substitution of numerous unhealthy goods with nutritionally sound alternatives.

Lipids

Egg yolks, the brain, liver, kidneys, red meat (beef, veal, hog, and lamb), and game meat all contain cholesterol (roe, rabbit, etc.). Fish, chicken, and turkey breast have the lowest levels of cholesterol and saturated fat. Butter, sweet and sour cream, whole fat and melted cheeses, pork fat, pâté, meat cans, bacon, cheeses, sausages, salami, beef, and mutton all have high

concentrations of saturated fat. Avoid frying whenever possible. If fats must be utilised, they should only be of vegetable origin, such as linoleic acid-containing wheat germ, soybean butter, sunflower seeds, or olive oil. It should be emphasised that it is not advised to reheat butter (for example, in a deep fryer) because doing so would lead it to undergo more harmful hydrogenation.

Sugar, protein, fish, meat

According to studies, eating meals with a high glycemic index raised the risk of ischemic and hemorrhagic stroke mortality in Japanese women, whereas eating more sugar raised the risk of hemorrhagic stroke in middle-aged and older women. Consuming rice has been linked to lower cardiovascular disease risk in Japan and an increased risk of stroke in China's ageing population. In terms of nutrition, the protein's source is crucial. For instance, it has been demonstrated that eating fish protects against stroke. The risk of stroke was found to be decreased by 6% by eating three fish meals per week, according to a repeated meta-analysis of 15 research, and by 17% by eating fish every day, according to another study. Remember: Consuming fish, especially blue fish (mackerel, anchovy, tuna, herring, and salmon), at least 2-3 times per week is advised for stroke prevention.

Electrolytes (sodium, potassium, magnesium, calcium)

A higher diet of potassium from fruits and vegetables is linked to a lower risk of stroke, according to recent studies, while a higher consumption of sodium is linked to an increased risk of stroke. Never forget: Consuming more salt increases your risk of having a stroke. Consequently, it is advised to consume salt in moderation and to avoid salting meals in order to prevent strokes. The daily recommended allowances for potassium and sodium are respectively 4.7 g and 2.3 g. The usage of magnesium decreased the incidence of stroke, particularly ischemic stroke, according to a meta-analysis. Although meta-analysis statistics argue against calcium consumption, the impact of its use is unclear.

Alcohol and caffeine

The risk of hemorrhagic stroke is increased by excessive alcohol use, whereas ischemic stroke has various effects. Men are permitted to drink up to two alcoholic beverages per day, while non-pregnant women are permitted to drink one, according the guidelines for preventing stroke. Coffee (3–4 cups) and tea (> 3 cups) consumption is linked to a lower risk of stroke (17% and 21%, respectively).[22]

Nutritional Supplements for Stroke Recovery

- **Potassium**: Potassium regulates blood pressure and may improve a stroke victim's prognosis. Potassium is abundant in bananas, which can be easily consumed when pureed.
- **Omega-3:** Although omega-3 fatty acids are naturally present in fish and many other foods, they can also be taken as a supplement. Omega-3 has been connected to both stroke healing and prevention.
- **Vitamin B3:** According to studies, Vitamin B3, which is present in high concentrations in turkey and other natural sources, can aid in the recovery of brain function following a stroke.
- **Coenzyme Q10 (CoQ10):** CoQ10 is an antioxidant that guards against oxidative damage to human tissues, including stroke-damaged brain tissue.[23]

Which nutrients affect the risk of stroke?

Fat and Cholesterol

Both genders' rates of stroke death are favourably associated with dietary saturated fatty acid (SFA) intake.[24] In contrast to the lowest quintile of consumption, an observational study of 43,732 men in the USA found no increase in the risk of ischemic stroke in those who consumed the highest amounts of total fat, dietary cholesterol, vegetable fat, animal fat, saturated fat, monounsaturated fat, and Tran's fatty acids.[25] After four years of follow-up, no association between dietary fat and the incidence of either an ischemic stroke or a hemorrhagic stroke was found. Red meat consumption, high-fat dairy consumption, nut consumption, and egg consumption were not linked to stroke risk.[26] Low consumption of Tran's fatty acids and saturated fat is associated with a declining trend in the risk of coronary heart disease.[27] Furthermore, rather than the percentage of calories coming from total fat, the type of fat consumed might be more important for cardiometabolic health.[28,29]

Saturated fatty acid

Intake of the highest quartile of saturated fat compared to the lowest quintile was not linked to an increased risk of stroke, according to a meta-analysis of eight observational studies.[30] The Framingham Heart Study did find a link between dietary intake of total and monounsaturated fat and a lower risk of ischemic stroke.[31]

Polyunsaturated fatty acids

There is no solid research linking PUFA consumption to a reduced risk of stroke. It has been suggested by a number of observational studies and randomised clinical trials that substituting PUFA for SFA can lower the prevalence of coronary heart disease. Eicosapentaenoic acid (EPA) (20:5 omega-3) and decosahexaenoic acid (DHA) (22:6 omega-3) are marine-derived omega-3 fatty acid sources found in oily fish such salmon, herring, trout, and sardines.[27] Many studies indicate that an imbalance in the diet's n-6 and n-3 fatty acid consumption can result in the development of chronic diseases. Two meals of fish per week, or 1 g of EPA and DHA combined, are the recommended daily intake of n-3 fatty acids according to international guidelines for the primary prevention of cardiovascular disorders.[32] Patients who consume EPA or DHA can lower cardiovascular fatalities, sudden cardiac death, all-cause mortalities, and non-fatal cardiovascular events, according to a meta-analysis of 11 randomised clinical studies including 39,044 participants.[33] There are advantages of n-3 PUFA in reducing overall mortality and sudden death, according to large clinical trials like the diet and reinfarction trial and the GruppoItaliano per il Studio della Sopravivenzanella Miocardico Infarction Prevenzione. The results of controlled clinical trials, on the other hand, do not support a link between n-3 consumption and the risk of stroke.[34,35]

Six foods that prevent stroke

1. Fruit and vegetables

Boost your intake of fruits and vegetables by choosing a wide variety of hues, such as deep reds, oranges, yellows, purples, blues, and greens.

2. Whole foods

Organize your diet around whole, unprocessed foods.

3. Salt-free spice

Herbs and salt-free spices like paprika, cumin, cayenne pepper, black pepper, and turmeric can be used in place of salt.

4. Fish

Consume more fish and take into account plant-based omega 3 sources like chia or flaxseed.

5. Lean protein

Use more beans and other legumes as protein sources. Choose sources of animal protein that are leaner, such as lean beef, white-fleshed fish, skinless white-meat chicken, and low-fat dairy products.

6. Water

Get plenty of hydrated, fresh water to drink.

Foods to eliminate from your stroke diet

1. Salt

Most of our salt intake comes from processed foods and takeaways, says Ciska. High-salt foods to avoid or limit include:

- Biltong
- Salted crackers
- Chips
- Pretzels
- Cheese
- Sauces
- Processed meats

Also consider stock cubes, spice mixes (chicken spices, BBQ spice) soup powders and gravies that are often used during cooking.

2. Sugar

Reduce the consumption of sugar-sweetened cooldrinks and snacks. One small glass of juice (125ml) is sufficient per day.

3. Saturated fat

Substitute plant-based fats (such as those found in avocado, seeds, and nuts) with animal fats that are high in saturated fat.

4. Refined carbohydrates

Substitute low-GI, whole-grain starches for processed carbohydrates.

5. Alcohol

Consume alcohol in moderation – no more than one drink for ladies and two for men each day.[36]

CONCLUSION

The preceding review article delves into the nutritional management of stroke. As we all know, stroke is the leading cause of death. The article discusses stroke definition, history, and types, as well as specific symptoms, pathophysiology, and treatment options based on the type of stroke. According to our topic nutritional management for stroke, certain nutrients that reduce the risk of stroke include higher antioxidants, vitamins, potassium, calcium, vegetables, fruits, whole grains, and so on, and it can also be prevented by certain diets such as the DASH diet, as well as some physical activity. This article also goes into detail about the nutrients that may increase the risk of stroke.

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