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World Stroke Day

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This document has been prepared by Cochrane Cameroon to provide **healthcare professionals** with evidence on stroke prevention and management. Enjoy your read!

EDITORIAL

On October 29 2024, World Stroke Day aims to raise awareness of stroke prevention, treatment and rehabilitation worldwide. According to global statistics, this year more than 12 million people will experience their first stroke, and around 6.5 million will die as a result. Today, over 100 million people suffer the consequences of a stroke. Stroke increases with age, but over 60% of strokes occur in people under 70, and around 16% in those under 50.

In low- and middle-income countries, the increase in stroke cases is more rapid, due to greater difficulties in medical care and rehabilitation. Approximately 0.66% of global GDP represents the global cost of stroke, which may reach \$1,000 billion in the US before 2030.

Why was this summary produced?

To provide up-to-date evidence on stroke prevention and treatment.

What is a systematic review?

A summary of studies that answers a clearly formulated question and uses systematic and explicit methods to identify, select and critically appraise relevant studies. Data from different studies are extracted and can be analysed together using meta-analysis techniques.

THE SITUATION REGARDING STROKES (CEREBRAL VASCULAR ACCIDENTS) IN CAMEROON

In Cameroon, stroke is a major cause of illness and death, mainly due to the high rate of high blood pressure and diabetes in the population. This issue is being addressed by the Ministry of Public Health (MoH), which is doing its utmost to raise awareness and build skills in stroke treatment.

MoH's action plan includes the implementation of Universal Health Coverage (UHC), aimed at optimizing access to care for chronic conditions, particularly strokes. The aim is to reduce the financial burden on patients and optimize access to medical services for everyone, particularly in areas where access to health services is limited.

Awareness-raising approaches are combined with information campaigns aimed at detecting the early symptoms of stroke and encouraging prompt intervention, which is vital for reducing the consequences. In addition to these measures, the MoH works in partnership with other stakeholders in healthcare to optimize the skills of health facilities in diagnosing and managing stroke cases.

For more information on the MoH's stroke policies and actions, please refer to the official information available on the Cameroon Ministry of Public Health website or via specific press releases.

SUMMARIES OF SYSTEMATIC REVIEWS

I. Can text message reminders help people with heart disease take their medications regularly?

Key messages

Due to a lack of strong evidence, the benefits of text messaging for medication adherence, fatal cardiovascular events (death from heart disease), non-fatal cardiovascular events (heart complications or stroke), combined cardiovascular events (death from heart disease, heart complications, or stroke), cholesterol, blood pressure, and heart rate are unclear.

Larger and well-designed studies are needed to measure the longer-term effects of text messaging on improving medication adherence in people with heart disease, particularly in low-income countries.

Why is this review important?

At least 523 million people suffer from heart disease worldwide. Medicines are often prescribed to treat the condition. However, the majority of people do not take the medications they need to keep them from having more heart problems. One possible method to improve medication-taking behaviours is by using text message-based reminders. Mobile phone text messaging may help people with heart disease take their medications by sending health information and text reminders to these people. However, it is still unclear whether text messaging can help people with heart disease take their medications regularly.

What did we want to find out?

We wanted to find out if text messaging was effective in improving medication adherence in people with heart disease compared to people who did not receive text messages. We were also interested in the effects of text messaging on fatal cardiovascular events (death from heart disease), non-fatal cardiovascular events (heart complications or stroke), combined cardiovascular events (death from heart disease, heart complications, or stroke), blood pressure, cholesterol, and heart rate.

What did we do?

We searched medical databases for studies looking at the effects of mobile phone text messaging on medication adherence in people with heart disease.

What did we find?

We found 18 studies involving 8136 people with heart disease. The studies took place in 11 countries. All studies compared using text messages to not using text messages.

Main results

All studies took place in middle- and high-income countries, with no studies being performed in low-income countries. People had various types of heart diseases and were on average 53 to 64 years old. Most people came from hospitals or cardiac rehabilitation facilities. Studies lasted for one to 12 months. The delivery method and frequency of text messages differed amongst studies. Some studies sent text messages customised to

patient characteristics and allowed people to reply to the messages. The content of text messages also varied across studies. Generally, text messages included medication reminders and healthy lifestyle information such as diet, physical activity, and weight loss. The studies used different ways of measuring and definitions of medication adherence, which prevented us from combining the findings of the studies for this outcome. As a result, the combined effects of text messaging on medication adherence are unknown. Of the 18 included studies, 10 studies showed that text messaging was effective in improving medication adherence. The other eight studies showed either a reduction or no difference in medication adherence compared to those people who did not receive text messages. Given that results on medication adherence differed across studies, we are not sure if text messaging can improve medication adherence.

We found that text messaging may make little to no difference to fatal cardiovascular events (death from heart disease). In addition, we are very uncertain whether using text messaging can reduce blood pressure, cholesterol, heart rate, non-fatal cardiovascular events (heart complications or stroke), and combined cardiovascular events (death from heart disease, heart complications, or stroke) compared with people who did not receive text messages. Two studies reported non-fatal cardiovascular events, with neither study finding evidence of difference between groups. Only one study reported combined cardiovascular events, and found no evidence of a difference between groups.

What are the limitations of the evidence?

Our confidence in the evidence is low to very low. Three main factors reduced our confidence in the evidence. Firstly, the research methods that the studies used were not of the best quality. It is possible that people in the studies were aware of which treatment they were getting, which could have influenced the results. Also, not all studies provided data about everything that we were interested in. Secondly, the content and delivery method of text messages differed across studies. Thirdly, results were very inconsistent across the different studies, and there were not enough studies to be certain about the results of our outcomes.

How up-to-date is this evidence?

This review updates our previous review. The evidence is current to August 2023.

Citation: Redfern J, Tu Q, Hyun K, Hollings MA, Hafiz N, Zwack C, Free C, Perel P, Chow CK. Mobile phone text messaging for medication adherence in secondary prevention of cardiovascular disease. *Cochrane Database of Systematic Reviews* 2024, Issue 3. Art. No.: CD011851. DOI: 10.1002/14651858.CD011851.pub3.

2. Low levels of sugar to prevent cardiovascular disease

Background

Cardiovascular disease (CVD) is a group of disorders affecting the heart and blood vessels and the number one cause of death worldwide. It is important to detect modifiable risk factors and find strategies to prevent CVD. There are several established modifiable risk factors for developing CVD, one of them being eating an unhealthy diet rich in sugar. Sugar can be divided in two categories; sugars naturally occurring in food and sugars that are *added* to food. A high level of added sugar intake is suggested to

cause weight gain and affect blood lipids, increasing the risk of CVD. This review assessed different levels of added sugars in the diet and the effect on cardiovascular events (e.g. heart attack or stroke), death, and CVD risk factors in healthy adults.

Study characteristics

Databases for randomised controlled trials (clinical trials in which participants are randomly assigned to either an experimental or a control treatment) were searched. The trials that were included compared different levels of added sugar intake and its effect on risk factors for CVD in healthy adults. People with previous CVD or diabetes were not included in the review.

Key results

Twenty-one trials were found with 1110 participants. None of the trials looked at cardiovascular events or death. The trials reported on blood pressure, blood lipid levels and blood sugar levels. The review found that low levels of added sugar intake led to a small reduction in blood pressure and blood lipid levels, but no effect was seen on blood sugar. The evidence is current to July 2021.

Quality of the evidence

The studies included in the review provide low-quality evidence that low levels of added sugar in the diet indirectly reduces the risk of cardiovascular disease. More long-term studies of high quality assessing effects of different levels of sugar on CVD risk factors, cardiovascular events and death are needed.

Citation: Bergwall S, Johansson A, Sonestedt E, Acosta S. High versus low-added sugar consumption for the primary prevention of cardiovascular disease. *Cochrane Database of Systematic Reviews* 2022, Issue 1. Art. No.: CD013320. DOI: 10.1002/14651858.CD013320.pub2.

3. Blood pressure targets in people with cardiovascular disease

Key messages

The evidence identified in this review does not support lower blood pressure goals over standard goals in people with high blood pressure (also known as hypertension) and heart or vascular (blood vessels and circulatory system) problems

More new trials are needed to examine this question

What is high blood pressure?

Hypertension (high blood pressure) is a long-term condition that increases the risk of health problems such as heart attack, stroke, or kidney disease.

How is high blood pressure treated?

Many people with heart or vascular problems also have high blood pressure. Some clinical guidelines recommend a lower blood pressure goal (135/85 mmHg or lower) for people with high blood pressure and previous heart or vascular problems than for with those without (140 mmHg to 160 mmHg or less systolic (pressure when heart pumps blood around the body) and 90 mmHg to 100 mmHg diastolic or less (pressure when heart rests between beats) are standard blood pressure goals). It is unclear whether lower goals lead to overall health benefits.

What did we want to find out?

We wanted to find out if lower blood pressure goals are better than standard blood pressure goals for people with high blood pressure who also have heart or vascular problems.

What did we do?

We searched for studies that compared lower blood pressure targets to standard blood pressure targets in people with high blood pressure and a history of cardiovascular disease (heart disease, angina, stroke, vascular disease). Studies had to talk about results such as deaths or other events caused by diseases of the heart or the blood vessels, such as heart attack, stroke, or heart failure. Studies could also talk about other types of health-related side effects. We only chose randomized studies (where people were randomly put into one of two or more treatment groups) with 50 or more people in each group and that lasted at least six months.

What did we find?

In this update, we found one new study giving a total of seven studies with 9595 people included in the review. We found little to no difference in total numbers of deaths, or heart or vascular deaths between lower and standard blood pressure goals. There was also little to no difference for the total number of heart or vascular problems and total serious harms, but the evidence was less certain.

What are the limitations of the evidence?

Based on uncertainty and limited information, we found more people dropped out of the trials because of medicine-related harms in the lower blood pressure target group and no overall health benefit among people in the lower target group.

How up to date is this evidence?

This is the third update of a review first published in 2017. The evidence is up to date to January 2022.

Citation: Saiz LC, Gorricho J, Garjón J, Celaya MC, Erviti J, Leache L. Blood pressure targets for the treatment of people with hypertension and cardiovascular disease. Cochrane Database of Systematic Reviews 2022, Issue 11. Art. No.: CD010315. DOI: 10.1002/14651858.CD010315.pub5.

4. Does stopping smoking make people with heart disease less likely to have another heart attack?

Key messages

- People with heart disease who stop smoking are likely to experience a decreased risk in future heart attacks or other events linked to the heart or blood vessels, such as stroke.
- People with heart disease who stop smoking are unlikely to have worse quality of life.

Smoking and heart disease

Smoking increases the chances that a person will have a heart attack, however there is less information on whether stopping smoking can reduce the risk of having a second heart attack.

Why we did this Cochrane Review

We wanted to find out whether stopping smoking after a heart attack can reduce the chances of having further heart attacks or other types of disease linked to the heart or

blood vessels. If stopping smoking does prevent further illness this could motivate more people to quit smoking and encourage doctors and nurses to provide more active support to help people to stop.

What did we do?

We searched for studies that lasted at least 6 months, and that included people diagnosed with heart disease who were smoking when the study started. Studies also had to measure whether people did or did not stop smoking and whether or not they had another event linked to their heart or blood vessels, such as another heart attack or a stroke.

Search date: we included studies published up to 15 April 2021.

What we found

We found 68 studies with 80,702 people. Most studies included adult men and women from the general population, however, 11 studies included only men. We looked at the combined results of 60 studies that measured events linked to heart disease and of 8 studies that measured people's quality of life over a period of 6 months or more.

What are the results of our review?

Compared with people who continued to smoke, people who stopped smoking were a third less likely to die from heart disease or stroke (evidence from 17,982 people in 18 studies) and a third less likely to have another heart attack or stroke (evidence from 20,290 people in 15 studies). Our confidence in these results was moderate (death from heart disease or stroke) and low (death from heart disease or stroke, another heart attack or another stroke) respectively. Our confidence in the strength of our results was reduced because of issues with how some of the studies were designed and carried out. However, when we only examined studies of a higher standard, we continued to find that people who stopped smoking were less likely to die from heart disease or stroke. This suggests that while we may be uncertain about how big the reduction in the chance of dying is, people who stop smoking are likely to reduce their chances of dying from heart disease or stroke to some degree. We found similar results for a decreased likelihood of dying from any cause, having another heart attack that does not lead to death and having a stroke that does not lead to death.

We also found that people who stopped smoking had a suggested improvement in quality of life compared with those who continued smoking after being diagnosed with heart disease.

Citation: Wu AD, Lindson N, Hartmann-Boyce J, Wahedi A, Hajizadeh A, Theodoulou A, Thomas ET, Lee C, Aveyard P. Smoking cessation for secondary prevention of cardiovascular disease. *Cochrane Database of Systematic Reviews* 2022, Issue 8. Art. No.: CD014936. DOI: 10.1002/14651858.CD014936.pub2.

5. Interventions to reduce sedentary behaviour after stroke

Review question

We reviewed the evidence that examines the effects of treatments to reduce the amount of sedentary behaviour in people after stroke.

Background

'Sedentary behaviour' refers to sitting or lying down (e.g. sitting watching the television) during the daytime rather than being active and 'up and about'. After any kind of stroke, it is very common for people to spend a lot of time in sedentary behaviour. This is common both among stroke patients who are in hospital as well as those who have been discharged home. Sedentary behaviours are known to be damaging to health; they increase the risk of heart attacks and strokes, and increase the chance of dying. Spending less time sitting after stroke could reduce these risks for people during life after stroke. If sedentary time is reduced then, by definition, physical activity (such as walking) must increase. In combination, this could not only reduce health risks but also improve the way people with stroke move and the way they feel.

Study characteristics

In December 2019, after comprehensively searching the scientific literature, we identified 10 randomised controlled trials for inclusion in the review. The studies involved a total of 753 participants at all stages of care, including being in hospital or back to living at home. Most of the people who took part were able to walk and stand on their own. The interventions ranged in duration from six weeks up to 18 months and all involved some element of increased physical activity. Studies included exercise alone (one study) or in combination with education and coaching (one study); physical activity alone (one study) or in combination with a mobile phone 'app' (one study), multi-component lifestyle interventions including physical activity (four studies), and additional inpatient physiotherapy (one study). One study used an intervention specifically aimed at breaking up long periods of continuous sitting.

Because of problems in the ways they were conducted, and in the ways they were reported by the research teams, all studies were at high or unclear risk of bias.

Key results

Currently, the evidence shows that interventions to reduce sedentary behaviour do not increase or reduce death, cardiovascular events, falls or other adverse events, or amount of time spent sitting. However, even though the evidence is incomplete, there may still be value in people after stroke trying to sit less, providing it is safe to do so.

Certainty of the evidence

We assessed the 'certainty' of the evidence with the GRADE methodology. Our certainty about the effects of these interventions on death, cardiovascular events, and falls is low, and for their effects on other adverse events it is moderate. The certainty of the effects on sedentary behaviour itself is very low. Interest in sedentary behaviour after stroke is relatively recent; the main problem with the evidence is that very few studies have examined this to date. The available evidence tends to be restricted to patients after stroke who are more mobile. Many studies were not conducted for long enough periods to show longer-term changes in sitting behaviour, or changes in the risk of illness or death.

Citation: Saunders DH, Mead GE, Fitzsimons C, Kelly P, van Wijck F, Verschuren O, Backx K, English C. Interventions for reducing sedentary behaviour in people with stroke. Cochrane Database of Systematic Reviews 2021, Issue 6. Art. No.: CD012996. DOI: 10.1002/14651858.CD012996.pub2.

6. Does limiting the times you eat (intermittent fasting) prevent cardiovascular disease?

What is cardiovascular disease?

Cardiovascular disease (CVD) is the leading cause of death worldwide. Smoking, diabetes and being overweight are risk factors for CVD, which means that they increase your chances of developing CVD. CVD can often be prevented by a healthy lifestyle, such as keeping to a healthy weight or losing weight if you need to.

Following a diet

Some people choose to lose weight by following a diet; for example, by eating less fat, or by reducing the number of calories they eat. Intermittent fasting is a type of diet involving patterns of eating and fasting (not eating foods); it does not limit what foods you eat, but limits when you can eat them. Eating patterns in intermittent fasting include: fasting for one or two days each week; fasting every other day; or eating only during certain hours and fasting for at least 12 hours every day.

Why we did this Cochrane Review

Diets that involve intermittent fasting are becoming popular. We wanted to find out if intermittent fasting could reduce or prevent CVD.

What did we do?

We searched for studies that tested intermittent fasting against 'usual eating' (someone eats whatever foods they want whenever they like), or against 'energy restriction' diets (someone limits the number of calories they eat).

We wanted to find out whether intermittent fasting affected mortality, cardiovascular mortality, risk of stroke, heart attack or heart failure. We also looked at whether intermittent fasting affected body weight and blood sugar levels.

Search date: we included evidence published up to 12 December 2019.

What we found

We found 26 relevant studies; we then used the results from 18 of the studies to compare the different diets. The 18 studies included 1125 adults (aged over 18 years). Some people in the studies had risk factors for CVD and some people had no risk factors. Most studies were funded by universities and research centres; two studies were funded by companies that make diet foods.

The studies compared intermittent fasting against usual eating (in seven studies); energy restriction diets (eight studies); and usual eating and energy restriction diets (three studies). The studies lasted from four weeks to six months. Results were reported after three months (short-term), and between three and 12 months (medium-term).

We didn't find any data on mortality, cardiovascular mortality or risk of stroke, heart attack or heart failure.

We found that people may lose more weight by intermittent fasting than by usual eating over three months (evidence from 7 studies in 224 people); but not when compared against energy restriction diets for three months (10 studies; 719 people) or longer (3 to 12 months; 4 studies; 279 people).

We also found that intermittent fasting did not appear to affect blood sugar levels when compared against usual eating over three months (3 studies; 95 people); energy restriction diets over three months (9 studies; 582 people); or energy restriction diets over 3 to 12 months (4 studies; 279 people).

The weight losses and changes in blood sugars reported in the studies were small. These changes were not deemed to be clinically significant.

Only four studies reported unwanted effects of intermittent fasting: some people taking part reported mild headaches. Only one study reported on people's well-being, showing a small increase in scores for physical well-being.

Our confidence in our results

We are not confident in our results. We found limitations in the ways that the studies were designed, conducted and reported; and in some studies, the results varied widely, or were not consistent. Our results are likely to change if more evidence becomes available.

Key messages

We did not find enough good certainty evidence to know whether intermittent fasting could prevent CVD. We found that intermittent fasting may help people to lose more weight than 'eating as usual' (not dieting) but was similar to energy restriction diets. We need further research to test the benefits and potential harms of intermittent fasting, and to test if it might affect how many people die or develop CVD.

Citation: Allaf M, Elghazaly H, Mohamed OG, Fareen MF, Zaman S, Salmasi A-M, Tsilidis K, Dehghan A. Intermittent fasting for the prevention of cardiovascular disease. *Cochrane Database of Systematic Reviews* 2021, Issue 1. Art. No.: CD013496. DOI: 10.1002/14651858.CD013496.pub2.

7. Does using low-sodium salt substitutes (LSSS) instead of regular salt reduce blood pressure and heart disease risks, and is it safe?

Key messages

- In adults, using LSSS instead of regular salt in food probably lowers blood pressure slightly. Adults using LSSS instead of regular salt probably have a slightly lower risk of non-fatal heart conditions, such as stroke or a sudden reduced blood flow to the heart, and death from heart disease.
- Using LSSS instead of regular salt probably also slightly increases the level of blood potassium (a mineral that keeps your heart beating at the right pace) in adults. This could be harmful for people who cannot effectively regulate the potassium in their bodies. Other evidence on safety is very limited.
- We are not certain about effects of using LSSS instead of regular salt on blood pressure in children, or whether using LSSS is safe in children.
- This evidence may not directly apply to people known to be at risk of high blood potassium, such as people with kidney problems or on certain medications.

What are low-sodium salt substitutes (LSSS)?

LSSS are products with less sodium than regular salt. Amounts of sodium in LSSS are lowered by replacing some of the sodium with potassium or other minerals. LSSS may help lower risks of using regular salt, since eating lots of sodium and not enough

potassium contributes to high blood pressure. Globally, high blood pressure is the largest cause of preventable deaths, mainly because it causes stroke, acute coronary syndrome (ACS; where less blood flows to the heart), and kidney problems.

However, LSSS also has potential health risks. Using LSSS may lead to higher than normal blood potassium (hyperkalaemia), which causes problems with the heartbeat speed and rhythm, or can cause the heart to stop. These risks are greater in certain people, for example, those whose kidneys do not work properly to remove potassium.

What did we want to find out?

We wanted to find out what the effects of using LSSS instead of regular salt are on blood pressure as well as on events (stroke and ACS) and heart disease death. We also wanted to know if using LSSS instead of regular salt is safe, both in the general population and in people who are known to be at risk of high blood potassium levels.

We wanted to find this out for adults, children and pregnant women.

What did we do?

We searched five electronic databases and trial registries for studies that compared using LSSS with using regular salt. We compared and summarised the results of the studies and rated our confidence in the combined evidence, based on factors such as study methods and sizes.

What did we find?

We found 26 trials* involving 34,961 adults and 92 children. No studies in pregnant women were found. Most trials were undertaken in rural or suburban areas, with more than half done in low- and middle-income countries. Most trials included some people with high blood pressure (22); the largest included only people with a high risk of stroke. Seven trials were done in people at possible risk of high blood potassium. All trials excluded people where high potassium intake is known to be harmful, such as people with kidney problems or on certain medications. Nearly all trials (23) examined LSSS types where some sodium was replaced with potassium. The amount of sodium replaced in the various LSSS used in the trials ranged from very small (3%) to large (77%).

*Trials are types of studies in which participants are assigned randomly to two or more treatment groups. This is the best way to ensure similar groups of participants.

Main results

In adults, LSSS probably lowers blood pressure (diastolic and systolic) slightly when compared to regular salt. Using LSSS also probably lowers risk of non-fatal stroke, non-fatal ACS and heart disease death slightly when compared to regular salt.

However, using LSSS instead of regular salt probably also slightly increases the level of potassium in the blood.

Compared to regular salt, LSSS may result in little to no difference in high blood pressure and hyperkalaemia.

We could not draw any conclusions about effects of LSSS on blood pressure control, various heart disease events, death caused by stroke, lower than normal blood potassium (hypokalaemia), and other adverse events.

We could not draw any conclusions about the effects or safety of using LSSS instead of regular salt in children.

What are the limitations of the evidence?

We are moderately confident in the evidence. Our confidence was lowered mainly because of concerns about how some trials were conducted, and whether the results apply to the general population. We are not sure about the effects and safety of LSSS in children, pregnant women, people known to have a risk of high blood potassium, or those who do not have high blood pressure. We are also unsure about the effects of LSSS when used in foods not prepared at home. Further research may change these results.

How up to date is this evidence?

The evidence is up-to-date to August 2021.

Citation: Brand A, Visser ME, Schoonees A, Naude CE. Replacing salt with low-sodium salt substitutes (LSSS) for cardiovascular health in adults, children and pregnant women. Cochrane Database of Systematic Reviews 2022, Issue 8. Art. No.: CD015207. DOI: 10.1002/14651858.CD015207.

Others sources:

<https://www.minsante.cm/site/?q=fr/content/phase-i-universal-health-coverage-north-west-region-has-been-launched-grand-style&page=1>

<https://www.world-stroke.org/world-stroke-day-campaign/about-stroke/impact-of-stroke>

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