Stroke Prevention with Lifestyle Modification

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Abstract

Background : Stroke is one of the common caused of death in the world. Lifestyle modification is to prevent the stroke occurred and to reduce the risk of new stroke events.

Method: method used is a literature review through international journals.

Discussion : This literature review shows that there is a poor correlation between increased knowledge about stroke and changes in lifestyle behavior. Modification of risk factors is very important for primary and secondary stroke prevention. Long-term lifestyle modification is difficult to maintain and require comprehensive and individualized intervention. Increasing the understanding of stroke risk will prevent a significant number of strokes before they lead to death and disability. In this way, two major strategies could be applied: the high-risk strategy and the mass (population-based)strategy. The high-risk one deals with individuals with a higher risk of developing stroke and includes lifestyle changes (i.e., reduced salt and alcohol intake, physical activity, weight loss, smoking cessation, etc.) and pharmacological interventions (i.e BP and lipid lowering agents, antiplatelet medications, etc.).

Conclusion: Lifestyle modifications should address not single but multiple cardiovascular risk factors to effectively reduce the risk of stroke. Lifestyle modifications on a personal level should include adequate physical activity, a healthy diet, the cessation of smoking and alcohol consumption, and stress reduction. Physical activities should be performed in a healthy environment without air pollution.

Keywords : stroke, stroke prevention, lifestyle modification, risk factors, physical activity

Introduction

Stroke is a condition that causes a person to experience paralysis or death due to a bleeding disorder in the brain that causes brain tissue death according to Batticaca. Stroke is a clinical syndrome characterized by acute loss of brain function and can cause death according to the World Health Organization (WHO).[1]

According to the Global Burden of Disease (GBD) 2013 study, potentially modifiable risk factors cause more than 90% of the stroke burden,2 and more than 75% of this burden could be reduced by controlling metabolic and behavioural risk factors.[2] Healthy physical activity and eating behaviors are the cornerstones of evidence-based interventions. The American College of Sports Medicine's slogan that "Exercise is Medicine®" is based on overwhelming evidence that an active lifestyle significantly reduces the risk for a myriad of chronic conditions including cardiovascular disease and recurrent stroke. A recent statement developed for healthcare professionals by the American Heart Association emphasizes that after rehabilitation, goals for people with stroke should focus on developing and maintaining an active lifestyle that meets American College of Sports Medicine guidelines to prevent and improve physical function.[3]

In 2021, the top 10 causes of death accounted for 39 million deaths, or 57% of the total 68 million deaths worldwide. The top global causes of death, based on the total number of lives lost, are associated with two broad topics: cardiovascular (ischemic heart disease, stroke) and respiratory (COVID-19, chronic obstructive pulmonary disease, lower respiratory tract infections based on.[4] Stroke is the leading cause of death in Indonesia.[5] The problem of stroke is a problem that always exists from year to year. Stroke can be prevented by adequately controlling risk factors and promoting a healthy lifestyle.[6] Lifestyle modifications must address not just one but several cardiovascular risk factors to effectively reduce the risk of stroke.[7] The purpose of this literature review is to explain that lifestyle modifications can prevent stroke.

Method

The research method used was a literature review search using electronic databases through international journals. The inclusion criteria used by the author is to limit articles or journals published in the last ten years starting from 2019 to 2024.

Discussion

Stroke-Related Knowledge and Lifestyle Behavior among Stroke Survivors

Information during the acute stroke and rehabilitation admission, along with concrete proposals for lifestyle behavior changes are needed in order to prevent recurrent strokes. Stroke survivors reported increased stroke symptoms knowledge after 3 months, and this increase sustained for 12 months. A proportion of patients stated that they made changes in lifestyle behavior. In all, 63% of the respondents correctly identified their own cerebrovascular subtype. Thirty-seven percent had quit smoking after 12 months, 30% reported that they used less sugary items, and 26% used less fatty food after the cerebrovascular event.[8]

Stroke Prevention

Risk factor modification is essential for primary and secondary stroke prevention. To achieve this goal, doctors and patients should work together to create a comprehensive prevention and treatment plan. Communicating the importance of lifestyle modification and medical compliance is crucial. The rewards of successfully making these changes are immense, not only in stroke prevention, but in improving overall brain health, allowing patients to remain independent and productive.[9]

Updated Perspectives on Lifestyle Interventions as Secondary Stroke Prevention Measures: A Narrative Review

Lifestyle modifications should address not single but multiple cardiovascular risk factors to effectively reduce the risk of stroke. Lifestyle modifications on a personal level should include adequate physical activity, a healthy diet, the cessation of smoking and alcohol consumption, and stress reduction. Long-term lifestyle modifications are difficult to maintain and require comprehensive and individualized interventions. However, adhering to lifestyle modifications is the most effective secondary stroke prevention measure.[7]

Dissecting the Spectrum of Stroke Risk Factors in an Apparently Healthy Population: Paving the Roadmap to Primary Stroke Prevention

The most common risk factor was abdominal obesity, which was identified in 75% of the subjects; general obesity was detected in 48%.. Hypertension was observed in 44%; 8% of those examined had atrial fibrillation, and 9% had diabetes mellitus. Left myocardial hypertrophy on ECG was present in 53% of subjects, and acute ischemic changes in 2%. High-risk measures relate to individuals at higher risk of stroke and include lifestyle changes (e.g.,

reduction in salt and alcohol intake, physical activity, weight loss, smoking cessation, etc.) and pharmacological interventions (e.g., blood pressure and lipid-lowering medications, antiplatelet medications, etc.). These results suggest the presence of modifiable risk factors and the need to elaborate primary prevention strategies aimed at minimizing stroke disease.[10]

Predictors of Adherence to Lifestyle Recommendations in Stroke Secondary Prevention

This cross-sectional study of individuals after ischaemic stroke or TIA identifies low levels of adherence with combined health behaviours. Opportunities for enhanced secondary prevention through targeted interventions addressing multiple risk-reducing behaviours exist. Aerobic fitness levels were the strongest predictor of both physical activity participation and combined health behaviours (addressing diet, smoking and physical activity). Targeted secondary prevention interventions after stroke should address cardiovascular fitness training for MVPA and combined health behaviours; management of psychological distress in persistent smokers and consider environmental and social factors in dietary interventions.[11]

The Effect of an Overall Healthy Lifestyle on Early-Onset Stroke: A Cross-Sectional Study

Among all participants, there were 98 early-onset stroke patients and 723 late-onset stroke patients. Early-onset patients had a lower prevalence of overall healthy lifestyles than that of late-onset patients ($P<0.001$). Multivariate logistic regression revealed that an overall healthy lifestyle significantly reduced the risk of early-onset stroke. In reference to those without an overall healthy lifestyle, the multivariate-adjusted odds ratios (ORs) for early-onset stroke among participants with an overall healthy lifestyle was 0.27 [95% confidence interval (CI): 0.07–0.98]. In stroke patients, a healthy lifestyle was significantly associated with early- onset stroke. Individuals who were adhering to an overall healthy lifestyle had a lower risk of early-onset stroke compared to those who were not.[12]

Modifiable Lifestyle Factors and Risk of Stroke

Genetically predicted years of education was inversely associated with ischemic, large artery, and small vessel stroke, and intracerebral hemorrhage. Genetically predicted smoking, body mass index, and waist-hip ratio were associated with ischemic and large artery stroke. The effects of education, body mass index, and smoking on ischemic stroke were independent. Our findings support the hypothesis that reduced education and increased smoking and obesity

increase risk of ischemic, large artery, and small vessel stroke, suggesting that lifestyle modifications addressing these risk factors will reduce stroke risk.[13]

Recommendations of The Spanish Society of Neurology for The Prevention of Stroke. Interventions on Lifestyle and Air Pollution

Lifestyle modification constitutes a cornerstone in the primary and secondary prevention of stroke. Abstinence or cessation of smoking, cessation of excessive alcohol consumption, avoidance of exposure to chronic stress, avoidance of overweight or obesity, a Mediterranean diet supplemented with olive oil and nuts, and regular exercise are essential measures in reducing the risk of stroke and recommendation to reduce air pollution.[14]

Effectiveness of a Health Education Program for Patients Who Had a Stroke and Their Caregivers by Controlling Modifiable Risk Factors to Reduce Stroke Recurrence in a Tertiary Hospital in Bangladesh: Protocol for a Randomized Controlled Trial

Patients' enrollment started on October 2022, and follow-up will be completed in March 2024. A total of 432 participants were included in both the intervention (n=216) and control groups (n=216). This study was approved by the institutional review board and the ethics review board of the National Institute of Neurosciences & Hospital (IRB/NINSH/2022/151) on August 30, 2022. Our health education program is expected to reduce the recurrence of stroke and improve the quality of life of patients who have had the first stroke. The results of this study will provide insights into the importance of health education for (self)-management and prevention of stroke.[15]

Primary Stroke Prevention Worldwide: Translating Evidence Into Action

This Health Policy paper provides estimates of the global cost of stroke and evidence-based pragmatic solutions on strategies for primary stroke prevention, especially in LMICs. The proffered key solutions are targeted at reducing the occurrence of stroke and preventing economic losses from stroke through primary prevention across the life course. As many lifestyle habits are set early in life, culturally appropriate education about healthy lifestyles should be incorporated into standard education curricula, started early in life with reinforcement across the lifespan, and incorporate families. These preventive strategies should be complemented by adequate stroke education campaigns that consider cultural and subcultural differences, ethnicities, beliefs, geographical differences and risk of stroke across the lifetime.[16]

Conclusion

Risk factor modification is essential for primary and secondary stroke prevention including lifestyle modifications such as adequate physical activity, healthy diet, smoking cessation and alcohol consumption, and stress reduction as well as environmental factors. Lifestyle modifications can effectively reduce stroke although long-term lifestyle modifications are not easy to maintain, requiring comprehensive and individualized interventions. To achieve these good goals, doctors and patients must work together to create a comprehensive prevention and treatment plan. Communicating the importance of lifestyle modifications and medical compliance is crucial. The benefits of successfully making these changes are immense, not only in stroke prevention, but also in improving overall brain health, and allowing patients to remain independent and productive.

Participation and combined health behaviors (addressing diet, smoking and physical activity) are necessary. Therefore, fitness training interventions are an important component of stroke secondary prevention tools. Additional environmental and social factors may need to be considered in the promotion of fruit and vegetable consumption as gender aspects are identified. In younger individuals after stroke and/or at higher levels of existing psychological distress, additional strategies are required for successful smoking cessation.

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