Mini Review

iMedPub Journals
www.imedpub.com

Journal of Preventive Medicine
ISSN 2572-5483

2022
Vol.7 No.9:151

Stroke Prevention in Primary Care in India: A Review

Nisha Bhati[1*] and Shubham Bhati[2]

[1]Department of Health, Indian Council of Medical Research, Jodhpur, Rajasthan, India

[2]Department of Health, Jai Narayan Vyas University, Jodhpur, Rajasthan, India

[*]**Corresponding author:** Nisha Bhati, Department of Health, Indian Council of Medical Research, Jodhpur, Rajasthan, India, Email: nishabhati644@gmail.com

Received date: August 14, 2022, Manuscript No. IPJPM-22-14330; **Editor Assigned date:** August 16, 2022, PreQC No. IPJPM-22-14330 (PQ); **Reviewed date:** August 29, 2022, QC No. IPJPM-22-14330; **Revised date:** September 08, 2022, Manuscript No. IPJPM-22-14330 (R); **Published date:** September 15, 2022, DOI: 10.36648/2572-5483.7.9.151

Citation: Bhati N, Bhati S (2022) Stroke Prevention in Primary Care in India: A Review. J Prev Med Vol.7 No.9:151

Abstract

In adults, stroke is the main and most common cause of death and insistent disability worldwide. Every year, from stroke, around 1.8 million persons suffered in India. A total of 6,99,000 deaths occurred by a stroke in 2019, which was the total of 7.4% of deaths in the nation. Globally, the burden of Non-Communicable Diseases (NCDs) is rising more than communicable diseases. Therefore, the increasing threat in the world due to NCDs is at an alarming stage. And, for the reduction in stroke mortality, morbidity, and disability, early treatment and primary prevention is the only way for the same. Hence, there is a prerequisite for early diagnosis and treatment and the adoption of proper preventive measures to lessen risk factors for the decrease in stroke cases in primary care. Saying no to tobacco and alcohol, doing regular physical activity, and maintaining a healthy diet and nutrition are crucial strategies that come under primary as well as secondary stroke prevention. Thus, in the present review, we highlighted preventive measures, gaps in stroke prevention, preventive strategies for improving the prevention of stroke, an overview of the National Program, and what is next in the future.

Keywords: Stroke prevention; Primary care; Preventive strategies; Risk reduction.

Introduction

Stroke, in 2012, according to WHO (World Health Organization), Global Health Estimates, was the second and third leading cause of death and DALYs (Disability Adjusted Life Years) lost respectively [1]. To identify people, at high risk, it is important to understand stroke risk factors. And, also implement preventive measures or interventions.

There has been a positive and constant relationship between high or increasing blood pressure and stroke. Hence, hypertension is the major risk factor for causing the stroke [2,3]. Cholesterol is also considered the stroke risk factor and it comes under the modifiable risk factor. But, its relationship with stroke was not narrated well. Besides these, lifestyle-related factor-like overweight or obesity, smoking, alcohol drinking, unhealthy or improper diet, and physical inactivity have been recognized as the foremost risk factor for stroke. And, also these have been interrelated to other risk factors for increasing the risk. For instance, with high cholesterol levels and high blood pressure i.e., hypertension, obesity is linked to or associated [4]. Untreated hypertension enhances the chances of stroke [5]. Among the non-modifiable stroke risk factors, progressive age is the only important risk factor, as among people in the age group of 45 years or above, has an occurrence of 95% cases of stroke. And, among people over the age group of 65 years has been an occurrence of two-thirds of stroke cases. In addition, men suffered more *i.e.,* 25% from stroke than women [6,7]. At young ages, women have a higher stroke risk than men at a young age; however, as getting older, the relative risk is higher for men to some extent [8]. Among women, the higher or increasing risk of stroke, at young ages is related to pregnancy and other hormonal reasons, like the use of contraceptives [9]. Recent studies between 1990 and 2019 by Valery L Feigin, Benjamin A Stark, et al showed that high Body Mass Index (BMI) is the speediest growing risk factor for stroke [10]. BMI is an indicator that directly observes the person's total body fat. Thus, maintaining weight according to the person's height can reduce the chances of having a stroke and its complications. And, for secondary prevention, the recent study also disclosed that targeting various risk factors has additive benefits, like statins, aspirin, and anti-hypertensive medicines, united with alteration in dietary habits and exercise, can outcome in an 80% risk reduction [11].

A current INTERSTROKE, an international case-control study, conducted in 22 nations, found that modifiable ten stroke risk factors described 90% of the stroke risk [12]. In the study, there were involvements of 3000 stroke patients found that heavy smoking and alcohol drinking, hypertension, diabetes mellitus, diet, regular physical activity, waist-to-hip ratio, stress and depression, any vascular cardiac disease, atherosclerosis disease, etc. As, the most of strokes are first strokes in this case-control study, further these findings prove or concluded the importance of primary prevention by reduction of risk factors (modifiable), particularly for those that contribute the greatest risk, to decrease the first stroke risk [13].

Primary care suggests the finest chance to recognize individuals who are at high risk of stroke and direct the

appropriate preventable action. Several studies have shown that suitable pharmacological actions or treatments can lessen the risk by a continual or constant proportion [14]. Related to the prevention of stroke; evidence-based strategies have been established for modifying lipid profile, hypertension, and atrial fibrillation. Lipid modification strategies or guidelines direct lipid-lowering drug therapy begun in people at high risk as contrasting to measuring cholesterol levels in the blood. Guidelines concerning people at high risk with recognized diabetes or cardio vascular disease recommend the prescription of statins [15]. Hypertension strategies or guidelines instruct antihypertensive drug therapy is begun in people with constant blood pressure ≥ 160/100 mm of Hg or a lesser threshold of ≥ 140/90 mm of Hg for people with recognized cardiovascular disease, or diabetes. Atrial fibrillation strategies or guidelines among patients at high-risk measured by using an algorithm and should give anticoagulant therapy.

Because of demographic variations, a further rise in rates of stroke is predicted. And, of the 21st century, stroke is referred to as the incoming epidemic by World Health Organization (WHO). Hence, therefore, presently, for the current studies, stroke prevention strategies, are of key importance, suggesting that 85% of stroke cases are preventable. Recent studies have shown that pharmacological actions or treatment reduces the stroke risk by a persistent amount.

Gaps in primary stroke prevention

There are gaps in stroke prevention regarding people/public awareness. As there is a lack of awareness and knowledge regarding the prevention of stroke, primary as well as secondary [16]. There is a need to create awareness and build up knowledge among people for the same. Secondly, as per the National Program for Prevention and Control of Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS), there is the usage of population-wide strategies. Since population-wide approach works for promoting healthy behaviour and a routine lifestyle to attain an overall reduction of stroke risk in the whole population. Thus, there is a need to strengthen the approach at a wider level. And, also there is the necessity of lessening various risk factors that leads to an occurrence or causes a stroke.

Implementation of research in stroke prevention in primary care in India

There is an inadequacy of implementation research in India. It needs to be strengthened and consolidated in the country.

Preventive strategies for improving stroke prevention

According to the guideline for prevention and management of stroke, two major types of stroke risk reduction strategies have been proposed in primary health care in India. The first one is the mass or population-wide strategy, and the other one is the high-risk strategy [16]. The first preventive strategy is the one where mass or population-based approaches are used to target the entire population to reduce stroke risk. This approach works towards promoting healthy behaviour and lifestyle to achieve a complete or overall reduction of risk from a stroke in the whole population. There will be large beneficial effects results even when a small but population-wide level of risk factor reduction takes place. It requires a health systems approach with mass mobilization, policy implementation, and reinforcing legislative changes [17]. To support such approaches, there was limited evidence available, but still, there is increasing interest in population-based strategies, rather than individual-based lifestyle change strategies for Non-Communicable Diseases (NCDs) like stroke.

The second strategy is the high-risk strategy is for those who are at a higher risk of developing a stroke. The main objective of the high-risk strategy is the education, promotion, and maintenance of healthy lifestyle practices, control of blood pressure at the normal range, and also control of blood sugar level that leads to diabetes and its severe complications for risk reduction at a primary level of prevention from a stroke. Healthy lifestyle practices include regular physical activity, cessation of smoking, reducing or stopping alcohol drinking, and maintaining a healthy diet and nutrition *i.e.,* eating adequate fruits and vegetables, reducing dietary trans-fat or unsaturated fat intake, and following low salt or sodium intake. Adoption of healthy lifestyle practices can reduce the risk of several NCDs like stroke. Thus, doing regular exercise like walking for 30 to 35 minutes on a day [18], cycling for some time and yoga practices (now used most commonly all over the globe) could protect from a severe *stroke.* Besides these, alcohol binge drinking and smoking are also leading causal factors for developing stroke [19]. To reduce the chances of having a stroke these two major factors need to be diminished.

The National Programme for Prevention and Control of Diabetes, Cardiovascular Diseases and Stroke (NPCDCS): An overview

For health care providers, the government of India has been prepared the national guideline regarding stroke prevention and its management, involved in the management of stroke patients. The main objective is to support them, to make the best decisions for each patient, at primary and secondary levels of the health care delivery system using the evidence presently available. **The National Programme for Prevention and Control of Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS)** has been launched in October 2010 under National Health Mission (NHM), by the Government of India to address the increasing burden of Non-Communicable Diseases (NCDs) which was piloted in 2006, and was scaled up nationwide in 2014. It included early diagnosis and early treatment of non-communicable diseases, promoting lifestyle modification, altering behavioral patterns, and capacity building at various levels. As per the NPCDCS program in India, the role of primary health care leads to primary prevention of stroke, early recognition or early treatment, referral to higher centers, and rehabilitation of patients. It is proposed with the launch of Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (ABPM-JAY) in the year 2018, that all the existing Primary Health Centres (PHCs) and Sub Health Centres (SHCs) would be elevated or

updated as Health and Wellness Centres (HWCs) to deliver a broad or entire range of primary health care services [16]. This includes promotive, preventive, curative, and reconstructive aspects of a wide range of services that comprise care intended for the whole population.

Government Initiatives

COTPA, 2003-The Cigarettes and Other Tobacco Products (Prohibition of advertisement and regulation of trade and commerce, production, supply, and distribution) Act, 2003 of Parliament of India passed in 2003 [20]. Its purpose is to ban the advertisement of cigarettes and all tobacco products and to provide for the by-law or management of trade and commerce, manufacturing or production, supply and distribution of cigarettes and other tobacco products.

After that, during the 11th Five-year-plan, in the year 2007 to 2008, the Government of India implemented the National Tobacco Control Programme (NTCP), aiming to generate awareness about the hazardous effects of tobacco intake, decrease the production and supply of products formed from tobacco, ensure effective implementation of the supplies or provisions under the COTPA, 2003, help the people to leave or stop the use of tobacco, and for prevention and control of tobacco simplify the implementation of strategies supported by the WHO framework convention of tobacco control [21].

In a developing country, like India, mass health promotion strategy need to be more stringent and should include, an intervention involving the use of mass media and communication, strict legislative measures, health education in school, colleges, or any other educational department, in the community as well as workplace and any other professional institute that used to promote more about healthy diet and nutrition, to increase regular physical exercise, by reducing or stop smoking, and reduction in the drinking of alcohol. Another recommendation for mass approaches includes advancements in the use of appropriate technology [17]. As we know, in developing countries like India, there is increasing access to digital information; such kind of population-wide strategy may be used to provide information about primary and secondary prevention of stroke, sources of health care for stroke, and to give messages regarding health and its aspects.

How we can assess the risk of the first stroke?

According to some Indian studies, there is an ideal stroke risk assessment tool. That tool is found to be simple, broadly acceptable, and widely applicable. And, it does not consider the impact of several (multiple) risk factors. To predict the risk for stroke, Framingham Risk Scoring–Cardiovascular Disease (FRS-CVD) may be used, over the age of 10 to 20 years for an individual or a person, which cause to undergo further confirmation or justification in Indian stroke patients. Research is required to justify risk assessment tools among the age, sex, and local or regional groups. To estimate whether any of the more just lately identified risk factors add to the predictive accuracy of existing scales and establish or verify whether the use of these scales improves the primary prevention of stroke [16].

Conclusion

Stroke in primary care is hardly measurable due to lack of infrastructure, training, and other issues. However, prevention of primary factors is possible. This is because factors such as being overweight, alcohol drinking, smoking, diabetes mellitus, and hypertension, can easily be tackled by the primary care physician. Hence, there is a need to sensitize primary care staff about the need for prevention of stroke in primary care using existing infrastructure as per National Health Policy guideline 2014. It also concluded that doing lifestyle modifications like preferring a healthy diet, bring to an end smoking and drinking alcohol, doing regular physical activity, reducing weight, and managing blood pressure and sugar level can decrease the burden of stroke in the country. Following treatment compliance and early diagnosis of stroke at the primary level in primary care can lead to achieving a target of reducing mortality and disability among people of stroke.

The way forward

Apart from creating awareness in the general population or community for primary risk factors identification and reduction of those factors that increase the chances of getting stroke and other cerebrovascular or cardiovascular diseases. Some risk factors are non-modifiable, but some modifiable risk factors need to be identified early so that we can control or reduce these in many aspects. Keeping in view, the huge burden of stroke in India, increasing disability and mortality [22-25]. There is a need for an integrated approach to tackle the disease. Recent evidence has the related stroke to intense covid-19 pandemic affecting all age groups and preferably young aged people [26]. The need for early recognition of stroke symptoms and generating awareness concerning reaching timely hospitals becomes more significant.

References

1. Lozano R, Naghavi M, Foreman K, Lim S, Shibuya K et al., (2012) Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: A systematic analysis for the global burden of disease study 2010. Lancet 380: 2095-2128.
2. Lewington S, Clarke R, Qizilbash N, Peto R, Collins R et al., (2002) Age-specific relevance of usual blood pressure to vascular mortality: A meta-analysis of individual data for one million adults in 61 prospective studies. Lancet 360: 1903–1913.
3. Mac Mahon S, Peto R, Cutler J, Collins R, Sorlie P et al., (1990) Blood pressure, stroke, and coronary heart disease. Part 1, prolonged differences in blood pressure: Prospective observational studies corrected for the regression dilution bias. Lancet 335: 765–74.
4. Brown CD, Higgins M, Donato KA, Rohde FC, Garrison R et al., (2000) Body mass index and the prevalence of hypertension and dyslipidemia. Obes Res 8: 605–619.

© Copyright iMedPub

5. Sharma M, Hakim AM (2011) The management of hypertension for primary stroke prevention: A proposed approach. Int J Stroke 6: 144-9.
6. National Institute of Neurological Disorders and Stroke (NINDS) (1999) Stroke: Hope through research. (1st edn), National Institutes of Health, Bethesda.
7. Richard C. Senelick, Peter W Rossi, Dougherty, Karla (1994) Living with stroke: A guide for families. (3rd edn), Contemporary books, Chicago.
8. Kapral MK, Fang J, Hill MD, Silver F, Richards J et al., (2005) Sex differences in stroke care and outcomes: Results from the registry of the canadian stroke network. J Cereb 36: 809-814.
9. Boehme AK, Esenwa C, Elkind MS (2017) Stroke Risk Factors, Genetics, and Prevention. Circ R es 120: 472-495.
10. Feigin V, Stark B, Johnson C, Roth G, Bisignano C et al., (2021) Global, regional, and national burden of stroke and its risk factors, 1990–2019: A systematic analysis for the Global Burden of Disease Study 2019. Lancet Neurol 20: 795-820.
11. Hackam DG, Spence JD (2007) Combining multiple approaches for the secondary prevention of vascular events after stroke: A quantitative modeling s tudy . Str ok e 38: 1881-1885.
12. O Donnell MJ, Xavier D, Liu L, Zhang H, Chin SL et al., (2010) Risk factors for ischaemic and intracerebral haemorrhagic stroke in 22 countries (the interstroke study): A case-control study. Lancet 376: 112-123.
13. Go AS, Mozaffarian D, Roger VL, Benjamin EJ, Berry JD et al., (2013) Heart disease and stroke statistics-2013 update: A report from the american heart association. Circulation 127: 136–245.
14. Law MR, Wald NJ, Rudnicka AR (2003) Quantifying effect of statins on low density lipoprotein cholesterol, ischaemic heart disease, and stroke: Systematic review and meta-analysis. BMJ 326: 1423.
15. National Clinical Guideline Centre (UK) (2014) Lipid modification: Cardiovascular risk assessment and the modification of blood lipids for the primary and secondary prevention of cardiovascular disease. NICE 33: 349-356.
16. Guidelines for prevention and management of stroke.
17. Yogeshwar V Kalkonde, Alladi S, Kaul S, Hachinski V (2021) Stroke prevention strategies in the developing world. Stroke 49: 3092-3097.
18. Walking for half an hour a day can reduce severity of stroke. Hindustan times. 2021 [cited 13 October 2021].
19. Bien TH, Burge R (1990) Smoking and drinking: A review of the literature. Int J Addict 25: 1429-1454.
20. Cigarettes and other tobacco products act - Wikipedia En.wikipedia.org. 2021 [cited 13 October 2021].
21. India M. National Tobacco Control Programme (NTCP): National Health Mission. Nhm.gov.in. 2021.
22. Pandian JD, Sudhan P (2013) Stroke epidemiology and stroke care services in India. J Stroke 15: 128-134.
23. Kamalakannan S, Gudlavalleti ASV, Gudlavalleti VSM, Goenka S, Kuper H (2017) Incidence & prevalence of stroke in India: A systematic r e vie w . Indian J Med R es 146: 175-185.
24. https://www.researchgate.net/publication/322352630_Incidence_prevalence_of_stroke_in_India_A_systematic_review
25. https://www.researchgate.net/publication/259609109_Stroke_epidemiology_and_stroke_care_services_in_India
26. http://www.stroke-india.org/index.php