

# The Burden of Cerebrovascular Disease in India –The primary survey of Causes, prevention, Health care services, and Rehabilitation

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## Abstract

As the second-largest populated country, India has been facing many challenges in various sectors such as economic development and health care. Since independence, India's people have made enormous strides in terms of health. Controlling communicable diseases has taken a lot of work. But with a population of over 1.3 billion people, India's burden of Non-Communicable Diseases (NCD) is enormous. In India, NCDs were responsible for 6.8 million deaths in 2019, accounting for 67.6% of all deaths. Among all NCD-related deaths in the same year, ischemic heart disease was the leading cause of death, followed by COPD, stroke, and diabetes. This paper aims to survey, one of the leading mortality Disease-Stroke in India.

## Introduction

According to a recent survey, the Tamil Nadu health ministry reported that six lakh people are affected by stroke in India every year and one and a half Lakh people die due to the illness [1]. Stroke is becoming a major cause of early mortality, owing to changing demographics and the rising incidence of key modifiable risk factors. It is also called a cerebrovascular accident is a dangerous medical condition that leads to death and long-term disability. This long-term disability may be a partial or full-body disability(paralysis) that destroys human life and its surroundings. In 2019 Indian Health department reported that the incidence of stroke in India ranges from 116 to 163 per 100,000 people. According

to the ICMR's "India: Health of the Nation's States" report, stroke was the fourth-largest cause of mortality and the fifth major cause of Disability Adjusted Life Years (DALY) in 2016 [2]. So it is important to prevent the patient before it occurs.

## **Stroke Definition Types and Symptoms**

A stroke is a medical emergency that affects the artery's blood flow, which passes the blood to the brain. Due to this blockage, the brain cells are unable to get oxygen and get damaged and begin to die. The interruption of blood flow is caused by some of the reasons such as blood clots, the rupture in the artery, etc., There are three main types of stroke: (i) Transient ischemic attack also called mini-stroke is a temporary period of symptoms similar to a stroke. It may consider a warning sign of stroke. (ii) Ischemic Stroke is caused by a clot in the artery. (iii) Hemorrhagic stroke involves leakage or rupture in the blood artery. Stroke does not occur suddenly. It shows several symptoms before a month or a couple of months. Some of the common symptoms of a stroke are trouble in speaking, trouble in understanding others speech, slurred speech, numbness in the arm, leg, or face, vision problems, walking trouble, loss of balance, dizziness, severe headache, etc.,

## **Causes of Stroke in India**

Some disorders that increase the risk of having a stroke can be treated. Other factors that put patients in danger are beyond control. Hypertension is the medical term for high blood pressure. It is the most common cause of strokes in India[2]. Tobacco Usage increases the chances of having a stroke taken in any form (chewed / smoked). Nicotine causes an increase in blood pressure. cigarette smoke generates a fatty accumulation in the primary neck artery, It also causes blood to thicken and clot more easily. The public could be affected by secondhand smoke as well. Heart disease includes defective heart valves as well as atrial fibrillation, or irregular heartbeat, which causes a quarter of all strokes among the very elderly. Patients may also be affected by clogged arteries from fatty deposits. People who have diabetes are more likely to be overweight and have high blood pressure. Both increase the risk of a stroke. Diabetes affects blood arteries, increasing the risk of a stroke. The damage to the brain is worse if patients have a stroke when their blood sugar levels are high. Being overweight is also a major reason for patients in India to get

Stroke. Some medications can increase the risk of having a stroke. viz., Blood-thinning medicines, which doctors recommend to prevent blood clots, can occasionally increase the risk of a stroke by causing bleeding. Apart from the above-mentioned risk factors family history, lifestyle-related factors such as unhealthy diet, lack of physical activity, stress, excessive alcohol consumption are also the causing factors of stroke in India.

## **Prevention of Stroke**

“Time is brain” is the term used to define the importance of time when a patient is affected by stroke risk factors. As age is the main factor for stroke, no one can reverse the age and family history but other risk factors can be controllable if aware of them. Blood pressure is the foremost risk factor of stroke so that maintaining the blood pressure will avoid the cause of stroke. The prevention measures of blood pressure are diet, exercise, and avoiding smoking. Obesity is another risk factor that can be controlled by keeping BMI in control. Atrial fibrillation is a type of irregular heartbeat that leads to the formation of blood clots in the heart. These clots can move to the brain and cause a stroke. Stroke risk is nearly fivefold higher in people with atrial fibrillation. Immediate doctor examination is needed to avoid these stroke symptoms. In India, the prevention measure is divided into two categories, Mass(population-wide) strategy and High-risk strategy [3]. In Mass strategy, population-based screening has been done by the Government in order to find the people at risk of stroke. In a high-risk strategy, the Government has taken the action that aware the people to reach the hospital immediately finding the symptoms of a stroke.

## **Health care services in India**

When a stroke patient arrives at the hospital, a comprehensive physical examination and blood tests confirm the diagnosis. CT scans are highly useful in detecting the type of stroke and the location of the bleed or blockage in the arteries. Imaging tools such as the MRI can be used to detect the extent of brain tissue damage. The fundamental goal of stroke treatment is to reduce brain damage while also restoring blood flow. TPA (tissue plasminogen activator), a medication that breaks down blood clots within three hours after an ischemic clot, is used in some of India's leading stroke treatment hospitals. Blood thinners like warfarin and aspirin may be prescribed. Surgery to open up the blocked or narrowed artery may also be a possibility. For hemorrhagic strokes, surgical treatment

methods are preferred. The number of individuals suffering from and dying from stroke is rising in low- and middle-income countries (LMICs), such as India. India now has the third-highest rate of stroke deaths among all countries. Indians also have strokes at a younger age than individuals in affluent countries like the United Kingdom, in their 50s rather than their 70s[4]. This frequently causes individuals and their families great difficulty. In the last 20 years, there has been significant progress in stroke audit and research in the United Kingdom, resulting in significant advances in stroke service organization and care. Stroke-related death and disability have decreased as a result of these advancements.

The burden of stroke is increasing in India as a result of changing demographics and increased longevity, while the burden of stroke is decreasing in developed countries as a result of better control of risk factors, community-level stroke awareness, and well-organized acute stroke care settings, and rehabilitative centers. Many projects to improve stroke care have recently sprung up around the country, including the development of the "spoke and hub model" and the use of smartphone apps to relay brain imaging. Ambulance services have been established in 29 states by the Indian government in collaboration with the private sector. The "dial 108" model is the most popular. The government provides this ambulance service at no cost. In India, work has also been done in the field of family-led rehabilitation for post-stroke care, as well as improvements in smoking cessation initiatives (anti-smoking laws and public education in theaters).

## **Rehabilitation of Stroke in India**

The purpose of stroke rehabilitation is to assist the patient in relearning skills that were lost due to a stroke that impacted a region of the brain. Rehabilitation after a stroke can help the patient to regain independence and enhance the quality of life. Stroke consequences vary in severity, as does each person's ability to recover. Researchers discovered that persons who participate in a focused stroke recovery program outperform the majority of people who do not. Rehabilitation involves motor-skill exercises-improves muscle strength, mobility training-learn to use a walker, wheelchair, etc., Technology-assisted physical activities such as functional electrical stimulation which involves the application of electricity to weakened muscles to improve the function, Robotic technology assist diminished limbs with carrying out repetitive motions, helping the limbs to regain power

and function. Cognitive and emotional activities like Therapy for cognitive disorders, Therapy for communication disorders, Psychological evaluation and treatment, and Medication improves problem-solving, social skills, listening skills etc., In developed countries like America and Russia supports the need for stroke patients to receive an early, organized, interdisciplinary approach to their initial stroke rehabilitation, with inpatient rehabilitation facilities being preferred to provide this level of care for patients who have sustained stroke-related impairments and have a prognosis that warrants this type of treatment plan [5].

In India, the main problem is a lack of knowledge about stroke and how to manage stroke-related problems. The cost of providing therapeutic care and support to stroke patients and their families becomes an extra burden for both survivors and their families[6].

## Conclusion

The paper concludes that stroke is the third leading morbidity and disability disease in India followed by Heart- attack and COPD. Hypertension is the main cause of stroke which affects men in high percentage than women. The notion of prevention measures is lacking because of unawareness. Further research is needed to identify the health care measures taken by the Indian Government. After spending a lot of money on treatment, rehabilitation will be an extra burden to the family members. Genuine steps have to be taken in order to implement the guidelines of stroke management in India.

## REFERENCES

- [1] <https://www.newindianexpress.com/states/tamil-nadu/2021/oct/30/dont-ignore-early-signs-of-stroke-urges-tnhealth-minister-ma-subramanian-2377503.html>
- [2] Jebasingh, Y. K., & Sivanesan, P. (2019). Clinical Profile of Stroke Patients in South Tamil Nadu Tertiary Care Hospital–A Cross-sectional Study. *INTERNATIONAL JOURNAL OF SCIENTIFIC STUDY*, 7(6), 83-86.  
<https://main.mohfw.gov.in/sites/default/files/Guidelines%20for%20Prevention%20and%20Managment%20of%20Stroke.pdf>
- [3] <https://www.georgeinstitute.org/projects/improving-stroke-care-in-india>

- [4] Pandian, J. D., & Sudhan, P. (2013). Stroke epidemiology and stroke care services in India. *Journal of stroke*, 15(3), 128.
- [5] Burris, J. E. (2017). Stroke rehabilitation: current american stroke association guidelines, care, and implications for practice. *Missouri medicine*, 114(1), 40.
- [6] Kamalakannan, S., Venkata, M. G., Prost, A., Natarajan, S., Pant, H., Chitalurri, N., ... & Kuper, H. (2016). Rehabilitation needs of stroke survivors after discharge from hospital in India. *Archives of physical medicine and rehabilitation*, 97(9), 1526-1532.