

Lowering of Blood Pressure for Primary and Secondary Prevention of Stroke

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Description

Between 20% and 30% of the world's population suffers from hypertension. The most reliable and effective predictor of stroke is blood pressure. Stroke mortality rates are similar to hypertension mortality trends. A systolic blood pressure of more than 115 mm Hg accounts for 60% of the stroke risk in the general population. At 55, 65, and 75 years old, the lifetime risk of stroke in the Framingham cohort⁶ was around 1 in 5 for women and 1 in 6 for men. Stroke is the third leading cause of mortality in many countries, including China, behind heart disease and total cancer. The developing world accounts for two-thirds of all stroke deaths.

According to latest World Health Organization estimates, 815 million people worldwide suffer from a stroke each year, with 85 million dying and another 85 million permanently incapacitated. We analysed current literature from this vantage point to emphasise the lethal but reversible relationship between stroke and blood pressure.

The nonmodifiable risk factors for stroke include nonwhite ethnicity, male sex, advanced age, and a positive family history. Stroke illnesses caused by a single gene, such as cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy, are extremely uncommon. Stroke has a polygenic background in the great majority of cases, with documented or suspected variation in genes involved in hypertension, carotid intima-media thickness, vascular remodelling, small vessel disease, inflammation, oxidative stress, dyslipidemia, or angiotensin production. Ischemic strokes account for 20% to 30% of all ischemic strokes, whereas intracerebral haemorrhages account for a higher proportion of all intracerebral haemorrhages [1-3].

Smoking, excessive alcohol use (>60 g per day), obesity, dyslipidemia, diabetes mellitus, carotid artery disease, atrial fibrillation, heart failure, and other types of heart disease are all preventable causes of stroke. High blood pressure, on the other hand, has by far the greatest impact among the modifiable risk factors. The Prospective Studies Collaboration found a robust log-linear relationship between stroke mortality and blood pressure, starting at 115 mm Hg systolic and 75 mm Hg diastolic and persistent over the age range, in a quantitative review of 61 cohort studies (50 to 89 years). Each 20 mm Hg systolic or 10 mm Hg diastolic change in blood pressure was related with a >2-fold difference in stroke mortality in people aged 40 to 69.

Over and above the office blood pressure, prospective observational

and intervention studies consistently found that blood pressure measured by ambulatory monitoring or self-measurement predicted cardiovascular problems, particularly stroke. According to the Ohasama study, each 10 mm Hg systolic or 5 mm Hg diastolic increase in self-measured blood pressure increased the risk of total stroke by 30% and 20%, respectively. An aberrant circadian blood pressure profile with decreased nighttime dipping (10 mm Hg systolic or 5 mm Hg diastolic) was associated with a significant risk of cerebrovascular problems, according to O'Brien [4,5].

Conclusion

Even after accounting for the 24-hour blood pressure level, dipping status, and the prevalence of silent cerebral infarcts at enrolment, patients in the top decile had a higher baseline prevalence of multiple silent brain infarcts (57% vs. 33 per cent) and a higher stroke incidence (19% vs. 7%) during an average of 41 months of follow-up.

Conflict of Interest

None

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