

A Comparative Analysis of the Burden of Ischemic Stroke in Pre- and Post-Menopausal Women in China: Projections to 2041 Based on GBD 2021

Tao Tan¹, Jie Tan^{1,2,*}

¹Department of Cardiology, the People's Hospital of Kaizhou District, Chongqing, China

²Department of Cardiology, the Second Affiliated Hospital of Chongqing Medical University, Chongqing, China

Email address:

522470142@qq.com (Jie Tan)

*Corresponding author

Abstract

Background: Stroke is the second leading cause of death globally and a significant contributor to disability. Ischemic stroke (IS) accounts for approximately 85% of all stroke cases. However, the burden and trends of IS by menopausal status in China remain unclear. Understanding the differences in IS burden between pre- and post-menopausal women is crucial for developing targeted public health interventions. **Methods:** This study defined premenopausal status as 15–49 years and postmenopausal status as over 50 years. We estimated the age-standardized incidence (ASIR), prevalence (ASPR), DALYs (ASDALYR) and death rates (ASDR) of IS, in pre- and post-menopausal women from 1990 to 2021, using data from the 2021 Global Burden of Disease (GBD) Study. Temporal trends in these metrics were quantified using the average annual percent change (AAPC). The Nordpred age-period-cohort model was applied to forecast trends in IS incidence, prevalence, DALYs, and mortality for 2022–2041. **Results:** In 2021, premenopausal women accounted for 11.2% of IS cases among females in China. From 1990 to 2021, the ASIR of IS in premenopausal women rose by 12.8% (from 17.9 to 20.2 per 100,000 population). Conversely, the ASPR, ASDALYR, and ASDR in this group decreased by 6.2%, 31.3%, and 52.6%, respectively. Among postmenopausal women, the ASIR and ASPR of IS increased by 28.9% (from 364.9 to 470.7 per 100,000 population, AAPC: 0.81 [95% CI: 0.77–0.84]) and 41.7% (from 2577.8 to 3652.9 per 100,000 population, AAPC: 1.05 [95% CI: 0.96–1.14]), respectively, from 1990 to 2021. In contrast, the ASDALYR and ASDR of IS decreased by 23.8% (from 5202.3 to 3965.7 per 100,000 population) and 25.1% (from 294.7 to 220.6 per 100,000 population), respectively. Projections to 2041 indicate that the ASPR of IS in both groups will basically stable. However, the ASIR is projected to increase, while ASDALYR and ASDR are expected to decline. The IS incidence, prevalence, DALYs, and death numbers in premenopausal women are expected to decrease, while in postmenopausal women, these metrics are projected to increase by 145.2%, 77.7%, 85.6%, and 109.3%, respectively, over the next 20 years. **Conclusions:** IS remains a significant public health challenge in China, with a growing burden in postmenopausal women. These findings underscore the need for targeted prevention and intervention strategies, especially for postmenopausal women, to address the rising impact of IS.

Keywords

Ischemic Stroke, Premenopausal Women, Postmenopausal Women, Global Burden of Disease