



STROKE IN WOMEN: TIME TO ACKNOWLEDGE SEX DIFFERENCES

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Historically, the stroke incidence, prevalence and mortality have been reported to be higher in men compared to women. But this gap seems to be narrowing over time. Recent data from high income countries suggests that the incidence of stroke varies with age, and older women beyond 75 years of age, may have a higher stroke incidence compared to men.¹ Additionally, women below 40 years in some South East Asian countries showed an increase in ischemic stroke incidence over time.² Moreover, Middle East and North Africa have reported higher stroke mortality amongst females compared to males. Keeping in view this changing epidemiology, it is imperative to have a better understanding of stroke in women.

When evaluating conventional risk factors for stroke, there are certain sex differences that need special mention. Hypertension has an overall lower prevalence in women compared to men, however, its prevalence as well as its association with ischemic stroke increases in older women. Diabetes is a stronger risk factor for stroke in women compared to men, and atrial fibrillation and migraine are both more prevalent and more strongly associated with ischemic stroke in women.³

Women are in addition exposed to sex-specific risk factors which do not receive much attention. Pregnant and post-partum women have been found to be at three times higher risk of stroke compared to other young adults and this is related to a number of changes associated with these states.⁴ Hypertensive disorders of pregnancy not only raise the risk during pregnancy but a recent study on the Framingham cohort concluded that a history of pre-eclampsia confers a three-fold higher

risk of experiencing a stroke in later life.⁵

Besides pregnancy, other hormonal changes also increase a woman's stroke risk. An early menopause and a shorter reproductive lifespan have both been identified as increasing stroke risk in women.^{6,7} Similarly exogenous oestrogen, be it in the form of oral contraceptive pills or hormone replacement therapy, has also been shown to increase stroke risk in several studies.^{8,9}

Stroke presentations are also more variable in women. Whereas men tend to present with the classic focal neurological deficits, women tend to present with more non-traditional symptoms like fatigue, light headedness, altered mental status etc.¹⁰ They also tend to present more often with stroke mimics. These and other reasons explain why women have longer delays in getting proper stroke care and several studies have reported worse outcomes for women.^{11,12}

Very limited data is available on stroke in women from low and middle income countries. It is reasonable to believe that the social determinants of health would further compound the risk and outcomes for women in these areas. Lack of proper nutrition, poor pregnancy management and outcomes, multiparity and poor access to healthcare both for acute and secondary stroke prevention are important factors that are expected to affect stroke in women. Future research should focus on risk factors unique to women in these countries. In addition, awareness should be created amongst physicians so as to screen women early for potential risk factors and address them in a timely manner.

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CONFLICT OF INTEREST

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