STROKE IN WOMEN: BURDEN, CHALLENGES AND FUTURE FOR PAKISTAN

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The burden of stroke is increasing around the world in both men and women. South Asia is home to 20% of the world's population but harbors almost 80% of world strokes. Previously sex specific data on stroke incidence, prevalence, severity and mortality was not available. Now over recent years this aspect has received attention. A systematic review in 2009 concluded that although stroke in women is less common compared to men, it has a greater severity and case fatality. Although this kind of data is not available from Pakistan, some preliminary reports suggest that this might be the case in this country also. Despite being under-represented in hospital based stroke registries, there is evidence to suggest that we see higher age specific prevalence rates of stroke in Pakistani women. Women also tend to get affected with the condition at a younger age compared to men. A hospital based study done at a tertiary care center found atrial fibrillation and prior stroke to be independent predictors of stroke in women after adjusting for age. The study also found that women were more likely to have more severe strokes and longer hospital stay. They also had poorer outcomes compared to men in terms of in-hospital mortality and modified Rankin's score at discharge. A community based study also found female gender to be significantly associated with cerebrovascular disease and it is one of the major contributors to mortality and morbidity in women above 60 years of age. Another hospital based study revealed that over time, proportion of women with ICH increased from 28% to 45% over 18 years, while that of males decreased. A recent study evaluated ischemic strokes in young Asian women including women from Pakistan. The study found large vessel thrombosis to be the commonest subtype followed by cortical venous thrombosis in more than one fifth of all ischemic strokes. Hypertension followed by diabetes and pregnancy were found to be the commonest risk factors in these women. The proportion of cortical venous thrombosis in these Asian women is much higher compared to Western literature. All this data suggests that stroke is an important health issue for women in Pakistan, and its determinants and outcomes may differ from men. Therefore, it needs special attention. Stroke in women presents some unique challenges compared to men. Firstly, women are more likely to present with atypical symptoms compared to men and hence end up missing the window for thrombolytic therapy. Also, stroke subtypes may differ between men and women, with CVT being an important etiology particularly in Pakistani women. Secondly, there needs to be a recognition of sex-specific risk factors for stroke. These factors include use of oral contraceptive pills and post menopausal hormones, pregnancy itself, and a specific form of migraine that is associated with high risk of stroke. Stroke related to pregnancy and post-partum state in this region is probably highest in the world. Eclampsia and anemia is highly prevalent which may be associated with stroke. Thirdly, there may be gender differences in the microvascular structure of coronary as well as cerebral vessels that although not yet clearly understood, may be contributing to a greater risk in women. Lack of exercise and increasing prevalence of obesity among women are important contributing factors. Limited availability of exercise facilities including parks, social limitations and poor awareness regarding exercise are important factors. Some recent studies have indicated that women respond better to thrombolytic therapy compared to men, but this finding needs to be validated in larger studies. Also, world data suggests that the outcome of stroke in women tends to be worse with more women ending up being institutionalized compared to men. Our limited data also confirms this finding. Number of rehabilitation facilities in country are limited with only a few women physiotherapists. Large number of women stroke patients is not comfortable with male physiotherapists and do not get proper rehabilitation after stroke. Next the traditional risk factors also differ between men and women. Whereas men are more likely to have heart disease, peripheral artery disease and more likely to be smokers, women are more at risk of having hypertension and atrial fibrillation. A Pakistani study also found atrial fibrillation as an independent predictor of stroke in women. Additionally, in our rural areas use of chewed tobacco is very common even in the female gender and this may be a significant contributor to stroke risk. Lastly, an important factor that is particularly applicable to our country is the general disregard for women's health in this society. South Asia has a higher degree of gender inequality issues compared to other parts of the world, and within Pakistan these issues are well documented particularly in relation to health indicators. Women are seldom screened for risk factors and are less likely to be taken to a tertiary center for management compared to

their male counterparts. All these factors make stroke a particularly challenging condition for Pakistani women. This available data suggests that Pakistani women are as much, if not more, at risk of suffering from this devastating condition as their male counterparts. There is a need to recognize stroke as a major health issue in women and to make efforts to ascertain factors responsible for it. There is enough data to suggest that these may differ significantly from men. Women health is a priority area for WHO indicated in Millenium development goals. Stroke in women has to be recognized and prioritized by federal and provincial governments, health ministries, higher education commission, Pakistan Medical and research council and Higher Education commission.

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