Sex differences exist after intracerebral hemorrhage but may not affect outcome

While differences by race/ethnicity and age are commonly evaluated, surprisingly few studies have focused on differences in risk factor and etiology for intracerebral hemorrhage (ICH). Epidemiologic data have identified important differences in risk factors for ICH, with hypertension strongly associated with nonlobar, deep ICH, while factors related to cerebral amyloid angiopathy (CAA) predominate for lobar ICH. In the current issue of Neurology®, Roquer et al. found that women were more likely to have lobar ICH than men, even after adjusting for age. Since men and women had similar proportions of diagnosed CAA, ICH etiology cannot explain sex differences in hematoma location. Also, men and women had similar volumes for both deep and lobar ICH, despite women having a higher severity score of ICH than men. This difference in ICH severity was accounted for by older age at ICH onset in women and may be reflective of women presenting with worse premorbid functional status compared to men. These findings contrast with a recent Chinese study, in which ages were similar but NIH Stroke Scale scores after ICH were higher in women. Finally, Roquer et al. found higher rates of smoking and alcohol use in men, which is similar to a Brazilian population. However, neither alcohol nor smoking have consistently been identified as risk factors when compared to control populations.

Similarly with etiology, Roquer et al. found that women appeared more likely to die or have greater disability after ICH compared to men, but once controlling for older age in women, sex differences disappeared. In the Brazilian study, female sex remained a risk factor for poor outcome at hospital discharge, despite adjusting for covariates. However, in the Chinese population, early outcome sex differences disappeared by 6 months. Interestingly, since age biologically affects men and women differently, age and sex may have an interaction effect on outcomes after ICH.

Limitations of these studies include a lack of population-based and demographically matched controls that may help to determine whether risk factors hold differing importance for the sexes. While most case-control studies may be limited by survival bias due to prospective identification of cases, the current article consists of data from prospectively identified cases without a survival bias. However, possible sex differences for risk factors and outcomes after ICH across racial/ethnic backgrounds mandate further study. Future studies may be able to expand upon the current evaluation across other ethnicities and with population-based controls.

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DISCLOSURE
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REFERENCES

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