

## **Recent Upper Respiratory Infection (URI) and Risk of Subarachnoid Hemorrhage (SAH)**

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**Background:** Recent infection likely increases inflammation systemically which may lead to an increased risk of disease. We tested the hypothesis that recent (<2 weeks) URI is associated with SAH by performing a population-based, case-control study of the risk factors of hemorrhagic stroke.

**Methods:** Hemorrhagic stroke patients underwent a detailed interview for risk factors as well as genetic sampling and a complete medical record review. Stepwise logistic regression modeling was used to determine if symptoms of URI were associated with hemorrhagic stroke after controlling for statistically significant risk factors, including sympathomimetic/stimulant medications. We defined recent URI as having any one of the symptoms of URI not felt by the subject to be related to allergy or other/unknown cause within 2 weeks from stroke onset.

**Results:** Between 4/2/97 and 4/30/05, 377 cases of SAH and 539 cases of ICH were matched to 711 and 1026 controls by age (+/-5 years), race and gender. Symptoms of recent URI were more common among cases of SAH compared to controls (12.2% vs. 6.7%) but not among cases of ICH compared to controls (9.0% vs. 7.9%). The original multivariate model considered sympathomimetic/stimulant medications but the results for URI as a risk factor were not significant. However, the use of PPA/pseudoephedrine was more common among subjects with a recent URI and the use of these medications was separated from the other sympathomimetic/stimulant medications. The resulting recalculation found both recent URI and use of non-PPA/phenylephrine stimulants to be significant risk factors for SAH.

**Conclusion:** Symptoms of recent URI is an independent risk factor for SAH but not for ICH. This finding suggests that inflammation is a key process to ruptured intracranial aneurysm.