Abstract #5

The Epidemiology of Subarachnoid Hemorrhage in Pregnancy

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Introduction: Subarachnoid hemorrhage (SAH) is a significant cause of maternal mortality(1); its incidence is markedly elevated in the intrapartum and puerperium periods(2). The purpose of this study is to investigate the epidemiology of pregnancy-related SAH.

Methods: Using the Nationwide Inpatient Sample (NIS), an administrative database containing information on 20% of U.S. hospital admissions, we extracted all pregnancy-related admissions for women ages 15-44 for the years 1997-2006. We then identified those admissions complicated by SAH. We compared the rates of various demographic characteristics and comorbidities in patients with pregnancy-related SAH to those in the general obstetric population using logistic regression to identify independent predictors of this complication. Outcomes were compared to age-matched women with non-pregnancy related SAH.

We then analyzed our institution’s experience with pregnancy-related SAH for the years 1992-2009.

Results: There were an estimated 2254 cases of pregnancy-related SAH in the U.S. during the study period, for a rate of 5.6 per 100,000 deliveries and 5.0 per 100,000 pregnancy-related admissions: 66.3% of cases occurred in the postpartum period.

Logistic regression revealed advancing age (odds ratio (OR) 1.9, 95% confidence interval (CI) 1.7-2.2 per 10 year increase), non-white race (OR 1.8, 95% CI 1.5-2.1), pre-existing hypertension (OR 2.8, 95% CI 1.7-4.6), preeclampsia superimposed on preexisting hypertension (OR 4.9, 95% CI 2.7-8.9), preeclampsia (OR 2.5, 95% CI 1.8-3.4), eclampsia (OR 95.8, 95% CI 69.7-131.5), tobacco use (OR 2.8, 95% CI 1.9-4.1), and coagulopathy (OR 7.5, 95% CI 4.6-12.0) to be independent risk factors for pregnancy-related SAH. The in-hospital mortality for pregnancy-related SAH was 10.7% versus 18.7% in age-matched, non-pregnancy-related SAH (p<0.001). The aneurysm clipping/coiling rate was 11.5% in pregnancy-related SAH and 43.8% in age-matched, non-pregnancy-related SAH (p<0.001).

There were 11 cases of pregnancy-related SAH at our institution during the study period. Seven of these 11 cases presented in the postpartum period (mean PPD #7). Nine patients presented with severe headache, 3 with eclamptic seizures. Three cases were aneurysmal treated with craniotomy and 2 were associated with venous sinus thrombosis. One patient died and 2 were discharged with neurological deficits.

Conclusion: Pregnancy-related SAH presents most frequently in the postpartum period, often with severe headache. Risk factors include advancing age, non-white race, hypertensive diseases of pregnancy, tobacco use, and coagulopathy. Our data suggest that pregnancy-related SAH is less often aneurysmal, and potentially less morbid than non-pregnancy related SAH.

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