

The Prevalence of Cervico-Arterial Dissection in Sub-Arachnoid Hemorrhage in the United States

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OBJECTIVES:

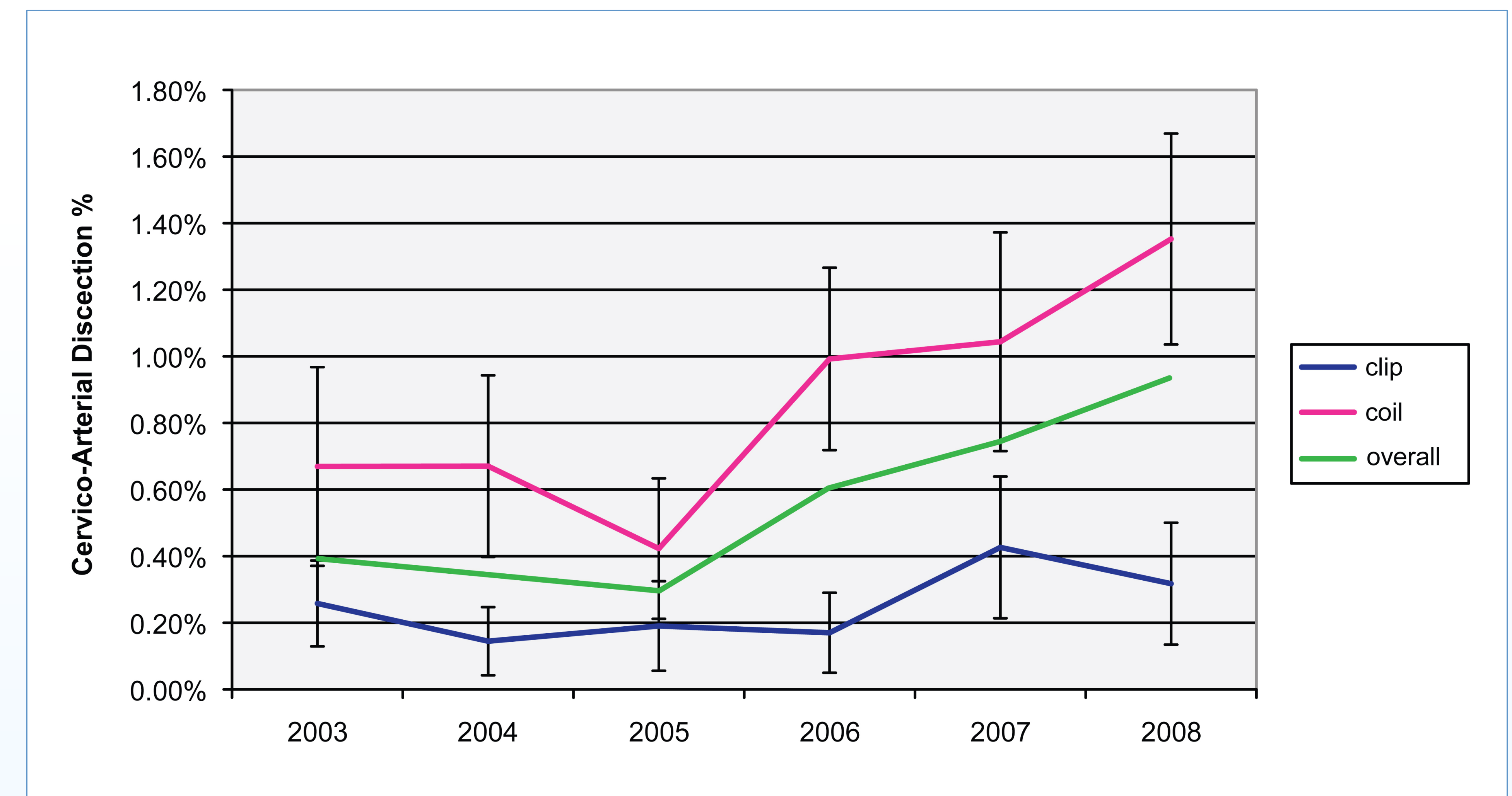
In this study, we sought to determine the prevalence of cervico-arterial dissection in subarachnoid hemorrhage (SAH) using a large administrative database.

METHODS:

This was a cross-sectional study of data derived from the National Inpatient Sample (NIS) from 2003-2008. We searched for admissions of patients older than 18 years, with a primary diagnosis of aneurysmal SAH, dissections of the carotid artery (CA) and vertebral artery (VA), which survived more than 72 hrs after admission. Patients were then divided based on interventions into clip or coil sub-groups. Definitions were based on the ICD-9CM codes. Prevalence proportions were calculated over study period and multivariate logistic models were fitted to assess for the impact of cervico-arterial dissection on hospital mortality.

RESULTS:

During the 6-year period the NIS recorded 13,227 SAH admissions, which 6,131 were coiled, 7,023 were clipped aneurysms, and 73 cases had cervico-arterial dissections. Cervico-arterial dissections were more common in coil group (1% [56/6131] vs. 0.3% [17/7023], $p < 0.0001$). Dissections of the CA were more common in the clip group (76% [13/17] vs. 34% [19/56], $p = 0.004$) and dissections of VA were more common in the coil group (70% [39/56] vs. 30% [5/12], $p = 0.004$). Overall, the prevalence of cervico-arterial dissection in SAH increased over time from 0.4% in 2003 to 0.9% in 2008 (Figure 1). After multivariate analysis, the risk of cervico-arterial dissection was higher in coil (OR 2.214; CI, 1.48-2.30), lower in older than younger patients (OR 0.97; 95% CI, 0.96-0.99, $p = 0.023$), blacks than other races (OR 0.319; 95% CI, 0.14-0.69, $P = 0.000$), and medium size hospitals compared to small hospitals (OR 0.15; 95% CI, 0.027-0.857, $P = 0.032$), and tended to be less in the clip group (OR 0.556; 95% CI, 0.303-1.023, $p = 0.059$). The total in-hospital mortality didn't change as a result of cervico-arterial dissection but was independently increased with craniotomy (OR, 1.63; 95% CI, 1.36-1.96, $p < 0.00001$), HTN (OR 1.08; 95% CI, 1.01-1.14, $P = 0.008$), and age (OR 1.02; 95% CI, 1.01-1.02, $p < 0.0001$), and decreased with Clip (OR 0.36; CI 0.33-0.40, $P < 0.0000$), Coil (OR 0.48; CI, 0.44-0.53, $P < 0.0000$), and in recent years (OR 0.96; CI 0.94 - 0.97, $P < 0.0000$).



CONCLUSION:

Our study demonstrates that the prevalence of cervico-arterial dissection in SAH is increasing in the United States. The risk of cervico-arterial dissection was higher in coil group and lower in older patients, blacks, and in those in medium size hospitals. Although cervico-arterial dissection did not significantly alter in-hospital mortality, SAH related mortality increased with craniotomy, HTN, and age, and decreased with clip, coil and recent years.

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