

Differences in Cerebral Aneurysms Selected for Open Microsurgical Treatment: A Comparison of a Hybrid Cerebrovascular Neurosurgeon with Traditional Cerebrovascular Neurosurgeons

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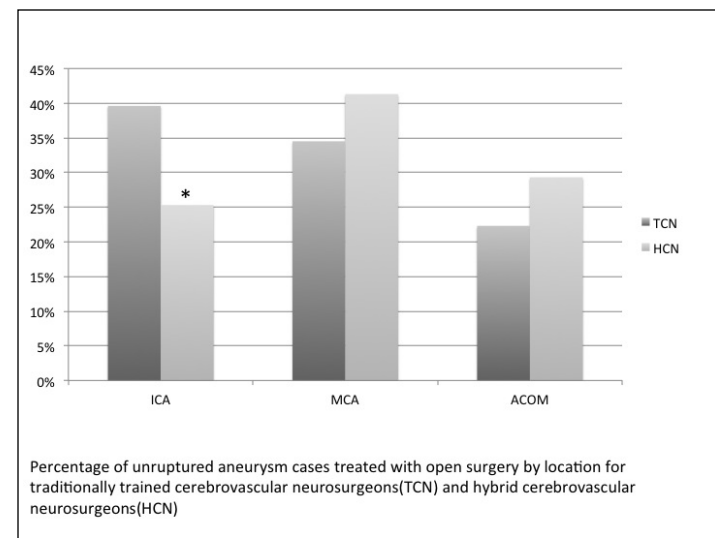


Introduction

The rapid expansion of endovascular neurosurgery has resulted in an increased number of specialists trained in both open microsurgery and endovascular techniques. We hypothesized that hybrid cerebrovascular neurosurgeons (HCNs) would select different subsets of aneurysms for open surgery as compared to neurosurgeons with traditional microsurgical training (TCN).

Methods

A prospective, single-center database of all cerebral aneurysms treated at a single institution was retrospectively reviewed to identify all cerebral aneurysms treated with open surgery from 2007 to 2012. All surgeries were performed by either one of four TCNs or, starting in July 2010, by one HCN. Differences in aneurysm locations were analyzed using Fischer's exact test.



Results

The number of elective, unruptured surgical aneurysm cases by TCNs and the HCN were 347 and 75, respectively. 94.5% of the unruptured aneurysms treated by TCNs were anterior circulation as compared to 100% for the HCN ($p=0.022$). The distribution of elective anterior circulation aneurysms was internal carotid artery (ICA) 39.6% TCN vs. 25.3% HCN ($p=0.013$), middle cerebral artery (MCA) 34.5% TCN vs. 41.3% HCN ($p=0.28$), and anterior communicating artery (ACOM) 22.3% TCN vs. 29.3% HCN ($p=0.23$).

The number of ruptured aneurysm case by TCNs and the HCN were 193 and 23, respectively. 95.9% of the ruptured aneurysms treated by TCNs were anterior circulation compared to 91.3% for the HCN ($p=0.29$). The distribution of ruptured aneurysms in the anterior circulation was ICA 38.4% TCN vs. 19% HCN ($p=0.06$), MCA 23.2% TCN vs. 33.3% HCN ($p=0.22$), and ACOM 47.6% TCN vs. 33% HCN ($p=0.23$).

Conclusions

There is a statistically significant difference in the location of anterior circulation aneurysms selected for elective open surgery by the HCN compared to TCNs. The HCN treated a smaller percentage of ICA aneurysms with open surgery.

Learning Objectives

By the conclusion of this session, participants should be able to discuss the importance of analyzing the treatment preferences between traditional cerebrovascular neurosurgeons and hybrid cerebrovascular neurosurgeons in relationship to aneurysm location.

