

Introduction

Not all intracranial aneurysms are equally as safe to treat. Aneurysms located from vertebrobasilar system, comprising the posterior circulation of the brain are known for their associated treatment challenges, given their close proximity to the brainstem and related perforator arteries. In this series, we report the features and outcomes of these rarer aneurysms compared to those of the anterior circulation.

Methods

Solitary aneurysms microsurgically treated by the senior author (M.T.L.) were included from a database of patients treated between January 2010 to April 2013 at a tertiary academic medical center. Patient age, sex, subarachnoid hemorrhage at presentation, Hunt and Hess grade, treatment type, aneurysms size, hypertension, and pre-and post-operative neurologic status were collected. Neurologic status was assessed using the modified Rankin Scale (mRS). Neurologic Outcomes were dichotomized into mARS scores 0-2 as ‘good’ and 3-6 as ‘poor.’ All aneurysms were categorized as anterior except for those located on the basilar, posterior cerebral, anterior inferior cerebellar, posterior inferior cerebellar, and vertebral arteries.

Results

A total of 317 patients were included; 86.4% (274/317) from the anterior circulation and 13.6% (43/317) from the posterior circulation. Patients who presented with a ruptured aneurysm was 45.1% (143/317); no difference between circulation types and rate of aneurysm rupture (p-value=.39) or Hunt Hess grade (p-value=.33) was present. Additionally, no difference between mean age (p-value=.85), aneurysm size (p-value=.13), sex (p-value=.73), history for hypertension (p-value.23), or pre-operative neurologic status (p-value=.41) was present.

There was no difference in the rate of good outcomes between the anterior (82.8%, 227/274) versus posterior circulation (72.1%, 31/43). Yet, mortality was greater in the posterior circulation (11.6% vs. 2.2%) (p-value=.002), possessing 5.31x greater risk for death (95% CI 1.69 – 16.64).

Learning Objectives

By the conclusion of this session, participants should be able to 1.) gain better insight into the difference in risk between treating aneurysms of the posterior circulation versus the anterior circulation.

Conclusions

Posterior circulation aneurysms make up a minority of intracranial aneurysms microsurgically clipped but these can be challenging lesions to treat, having a greater risk for mortality.