



Differential Effect of Body Mass Index on Outcomes after Aneurysmal Subarachnoid Hemorrhage is Dependent on Treatment Modality

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Introduction

Body mass index (BMI) may confer a protective effect on patients that suffer aneurysmal subarachnoid hemorrhage (aSAH). Whether the modality of aneurysm occlusion influences the effect of BMI on patient outcomes is not well-understood.

Methods

We retrospectively reviewed the outcomes of patients admitted to our institution for the management of aSAH treated with either clipping or coiling. Patients were segregated into groups according to BMI, cut-off values for which were determined by classification and regression tree analysis. Predictors of poor functional outcome (modified Rankin score >2 at =90 days) and post-treatment cerebral hypodensities were then determined separately for patients treated with clipping or coiling using stepwise multivariate logistic regression analysis.

Results

Of the 469 patients admitted to our institution with aSAH meeting our inclusion criteria, 144 were treated with clipping and 325 were treated coiling. Within the clipping group, the frequency of poor functional outcome was greater in patients with BMI =32.3 (47.6% vs 19.0%; p = 0.007). In contrast, in the coiling group, patients with BMI =32.35 had a lower frequency of poor functional outcome (5.8% vs 30.9%; p <0.001). On multivariate analysis, high BMI was independently associated with increased (OR 3.92, 95% CI 1.20-13.41; p = 0.024) and decreased (OR 0.13, 95% CI 0.03-0.40; p < 0.001) likelihood of poor functional outcome for patient treated with clipping and coiling, respectively. For patients in the surgical group, BMI =28.4 was independently associated with the incidence of cerebral hypodensities (OR 2.44, 95% CI 1.16-5.25; p = 0.018) on multivariate analysis. For patients treated with coiling, BMI =33.2 was independently associated with reduced odds of hypodensities (OR 0.45, 95% CI 0.21-0.89; p = 0.021).

Learning Objectives

1) Describe the treatment dependent effects of BMI on patient outcomes after subarachnoid hemorrhage

Conclusions

Our results suggest that BMI may influence outcomes after aSAH differently depending on treatment modality. These findings may aid in treatment selection for patients with aSAH.