

# Simultaneous aneurysm clipping and decompressive craniectomy in high-grade subarachnoid hemorrhage: a single center experience - Submitted: 3/27/2014

## General Information

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| Abstract Title:      | Simultaneous aneurysm clipping and decompressive craniectomy in high-grade subarachnoid hemorrhage: a single center experience |
| Study Design:        | Clinical Trial   |
| Preferred Format:    | Any Format   |
| Subject Category:    | Cerebrovascular  |
| Award Consideration: | Synthes Cerebrovascular Award  |

## Scientific Content

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| Introduction: | Morbidity and mortality continues to be significant for high-grade (Hunt and Hess IV and V) aneurysmal subarachnoid hemorrhage (aSAH) patients. Despite aggressive management, published mortality rates range between 33-59%. In one large study, favorable outcomes were achieved in 53.9% of grade IV and 24.1% of grade V patients. Decompressive craniectomy (DC) has been shown to reduce mortality and perhaps morbidity in patients with acute ischemic stroke. However, the role of DC in aSAH patients is not well known. Decompressive craniectomy performed simultaneously with aneurysm clipping in high-grade aSAH patients is routinely performed at our institution.   |
| Methods:      | A retrospective review of institutional data from December 2006 to June 2013 was undertaken. Patients with high-grade aSAH treated with surgical clipping and simultaneous DC were selected. Demographics, clinical course, and outcomes were analyzed. Phone interviews were conducted to determine functional outcome using modified Rankin score (mRS).   |
| Results:      | Twenty-two patients (M/F;9/13) were included. Mean age was 51.2 years and mean follow-up was 35.3 months. There were 9 and 13 grade IV and V, respectively. All patients had Fischer IV hemorrhage. Aneurysm distribution was: anterior communicating (n;8), middle cerebral (n;8), posterior communicating/anterior choroidal (n;4), paraclinoid (n;1), and internal carotid terminus (n;1). Overall mortality was 27% (6/22), unfavorable outcome (mRS 3-5) 32% (7/22), and favorable outcome (mRS 0-2) 41% (9/22). Favorable outcome for grade IV and V was 33% (3/9) and 42% (5/12), respectively. Mean intracranial pressure over initial 7 days was $8.79 \pm 1.8$ mmHg. Patients undergoing endovascular intervention for vasospasm and permanent cerebrospinal fluid diversion were 36% (8/22) and 23% (5/22), respectively. There was one complication related to craniectomy/cranioplasty (infection). |

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| Conclusions:                                 | Prophylactic DC may improve both mortality and functional outcome following high-grade aSAH compared with historic controls. Further study of this surgical adjunct is warranted to improve care of patients with high-grade aSAH. |
| Learning Objectives:                         | 1-Understand the literature on DC for aSAH. 2-Understand the rationale behind DC for high grade aSAH. 3-Understand financial utility for DC for high grade aSAH.   |
| References:                                  | Aneurysm,High Grade, Clipping, Craniectomy   |
| How will your research improve patient care: | At our institution, we routinely perform DC for high grade aSAH. Our outcomes are better than what has been historically reported. We believe that performing DC on aSAH improves outcomes significantly.                          |

Attachments:

## Authors:

| Author          | Disclosure | Presenting | Corresponding | CoAuthor |
|-----------------|------------|------------|---------------|----------|
| Luke Hnenny     |            | X          | X             |          |
| Alp Ozpinar     |            |            |               | X        |
| Vural Hamzaoglu |            |            |               | X        |
| Justin Cetas    |            |            |               | X        |
| Aclan Dogan     |            |            |               | X        |