Adenosine-Induced Transient Asystole to control intraoperative rupture of intracranial aneurysms: Institutional experience over 20 years

Poster 1013

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Disclosure

• None
Introduction

- Intraoperative brain aneurysm rupture can be life-threatening and carries high risk of morbidity and mortality
- In 2000, our group reported first use of adenosine to induce transient hypotension/asystole to control bleeding from and facilitate clipping of an aneurysm that ruptured intraoperatively
- Given limited number of reports, we reviewed our experience and the literature since that time
Methods

• We performed a PUBMED review
• Searched for descriptions of the use of iv adenosine to control bleeding from a ruptured aneurysm during open microsurgery
• We reviewed our institutional experience as well
Results

• We identified 29 patients
• 23 were from previous reports including our original case
• 6 additional were from our own experience
• Mean age 54.8 years
• 59% women
Results - II

- Most patients (24/29) presented with SAH
- Overall, mean dose of adenosine was 51.8 mg
- Successful clipping achieved in 100% of cases
- Transient or permanent morbidity in 5/29 cases
- Overall mortality 31%
- No complications or deaths related to use of adenosine
Discussion

• Adenosine administered intravenously results in rapid transient hypotension and typically asystole
• In our experience and in that of others, this often allows enough time to control bleeding from a rupture aneurysm, allowing for proper clip placement
• No complications directly related to the adenosine use in this setting have been described, but caution remains appropriate should temporary cardiac arrhythmias ensue
Summary

- Since our initial case description in Neurosurgery in the year 2000, an additional 22 cases of patients with intraoperative aneurysm rupture controlled by adenosine have been described. We add an additional 6 such cases, emphasizing the safety and effectiveness of adenosine use in this setting.

- Adenosine is also now used to soften unruptured aneurysms and for control during endovascular procedures.

- Thank you!