Frequency Of Mechanical Thrombectomy-Related Subarachnoid Hemorrhage In The Era Of Expanded Indications

Patrick A. Brown, MD
Christine Hwa-yun Tschoe, MD
Kyle M. Fargen, MD
Stacey Q. Wolfe, MD
Carol Kittel, MS
Joni Evans, MS

Wake Forest Baptist Medical Center
Departments of Radiology and Neurological Surgery
Winston-Salem, NC
Disclosures

• Dr. Brown: none
• Dr. Tschoe: none
• Dr. Fargen: none
• Dr. Wolfe: none
• Ms. Kittel: none
• Ms. Evans: none
Introduction

• Since 2015, mechanical thrombectomy (MT) has developed into mainstay therapy for intracranial emergent large vessel occlusion (ELVO)\textsuperscript{1-7}

• After publication of DAWN and DEFUSE-3, indications for MT have expanded to include delayed presentations\textsuperscript{8,9}

• As operator comfort has increased, indications have been considered for MT in the setting of distal occlusions\textsuperscript{10,11}

• Discussions of safety often limited to parenchymal hemorrhage and suggest relatively stable rates of sICH with expanded MT indications\textsuperscript{1-5,8,9,15}

• Discussion of SAH has been sparse with small series suggesting limited clinical effect of post-MT SAH, pre-dating the positive 2015 studies

• Our goal:
  • Report trends in frequency of MT-related SAH in the era of expanded MT indications
Methods

• Single-center

• Retrospective review of mechanical thrombectomy cases at Wake Forest Baptist Medical Center from January 2015 to June 2019

• Evaluated cases of MT-related SAH during the evaluation period for case development before and after initiation of expanded MT indications
Results

• 212 MT cases during the evaluation period

• Twenty six (26) cases of post-MT SAH during the evaluation period
  • Overall MT-related SAH incidence rate: 12.2% (26/212)

• MT-related SAH rates
  • Prior to January 1, 2018: 7.3% (5/68)
  • After January 1, 2018: 14.6% (21/144)
  • $p = 0.1341$
Results

Number of SAH cases by vessel location

- CCA
- ICA
- M1
- M2
- M3
- P2

Vessel treated

# of SAH cases
Results

SAH volume based on vessel treated

# of SAH cases

CCA  ICA  M1  ICA  M1  M2  P2  CCA  ICA  M1  M2  M3

Trace  Focal  Diffuse
Discussion

• After adoption of expanded MT indications in January 2018, rate of MT-related SAH trended upward at our institution
  • Not statistically significant (p=0.13)

• More SAH cases with M1 and M2 occlusions
  • Likely due to higher volume of these cases

• Diffuse SAH more common with M2 thrombectomy

• Larger sample size, multicenter data needed
  • Might we see statistical significance in larger sample?
Summary Points

• Incidence of MT-related SAH at our institution has trended toward increase since adoption of expanded time window

• **Further questions:**
  • Increased MT-related SAH incidence a function of:
    • Late presentation?
    • More aggressive/combined thrombectomy techniques?
    • Distal occlusions?

• Mechanism of development of SAH?
References


