## Neuro anesthésie

### ID: 163

# Arterial hypotension "magnitude" and neurological outcome during mechanical thrombectomy under general anesthesia

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#### Position du problème et objectif(s) de l'étude:

Mechanical thrombectomy (MT) is the standard of care for the treatment of acute ischemic stroke (AIS) with large vessel occlusion, but unfavorable outcome remains common. Procedural arterial hypotension has been associated with poor outcome. This study aimed to assess the impact of arterial hypotension "magnitude" during MT on neurological outcome.

#### Matériel et méthodes:

The study was approved by the Ethics Committee of the Angers University Hospital, which waived patient's consent for this study according to French law on Bioethics.

All patients or their relatives were informed about the data collection. All adult patients treated with MT for AIS under GA between January 2018 and June 2021 were included restrospectively. BP was recorded before anesthesia induction (baseline BP) and every 5 minute until 90 minutes after the beginning of the procedure.

The study's primary outcome was the functional neurological outcome, determined by mRS, at 90 days after the admission. We defined the good outcome by mRS  $\leq 2$  and the poor outcome by mRS >2. We compared patient's characteristics between groups using Chi-square tests for categorical variables. For continuous variables, we used Student t-tests or Mann-Whitney test for those not normally distributed. We determined thresholds for each drop in MAP from the baseline value and calculated the corresponding AUC.

#### **Résultats & Discussion:**

Among the 120 analyzed patients, 56 (46.7%) had poor neurological outcome. Our study showed correlations between poor outcome and a greater procedural AUC of arterial hypotension for the different thresholds: 5% (k 0.19; 95% CI 0.07-0.32; P = 0.003), 10% (k 0.19; 95% CI 0.07-0.32; P = 0.004), 15% (k 0.18; 95% CI 0.05-0.31; P = 0.005), 20% (k 0.19; 95% CI 0.06-0.32; P = 0.005) and 30% (k 0.21; 95% CI 0.07-0.33; P = 0.003). This association remains after controlling for age, baseline NIHSS and ASPECT score.

We found that hypotension during MT under GA is a common phenomenon, with 80% of patients experiencing at least one episode of MAP drop below 5% of the baseline value. Our study found that even slight procedural MAP drops were independently associated with a poor neurological outcome. Some limitations could be noticed; lack of power, retrospective design, time interval of 5 minutes between to BP measures, limitation to procedural hypotension and missing data about EtCO2.

#### **Conclusion:**

In our study, the "magnitude" of arterial hypotension for a patient's ongoing MT under GA for AIS by LVO was associated with poor neurological outcome at 90 days. This finding was as accurate for mild as severe hypotensive episodes. The depth of MAP drop seems more harmful than the duration of arterial hypotension.

Les auteurs déclarent ne pas avoir toute relation financière impliquant l'auteur ou ses proches (salaires, honoraires, soutien financier éducationnel) et susceptible d'affecter l'impartialité de la présentation.