

SEACOAST : SEdation with COLLateral Support in endovascular Therapy for acute ischemic stroke: a randomized multicenter controlled trial

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Background and rationale

- The optimal method of sedation in endovascular therapy of acute ischemic stroke (AIS) is unknown and subject to an ongoing debate
- We propose a clinical trial, designed to identify the optimal method of general anesthesia (GA) in endovascular treatment of acute ischemic stroke (AIS) using a widely applicable neuroanesthesia protocol, aiming to improve collateral circulation
- pCO₂ is a potent cerebral vasodilator that is uniquely controllable by controlled ventilation in the intubated patient under GA
- Regional cerebral blood flow and volume (CBF and CBV) are proportionally dependent on pCO₂
- Clinical data demonstrated better outcome in patients with higher end-tidal CO₂ in setting of GA for endovascular therapy of AIS
- Volatile anesthetics are also potent vasodilators

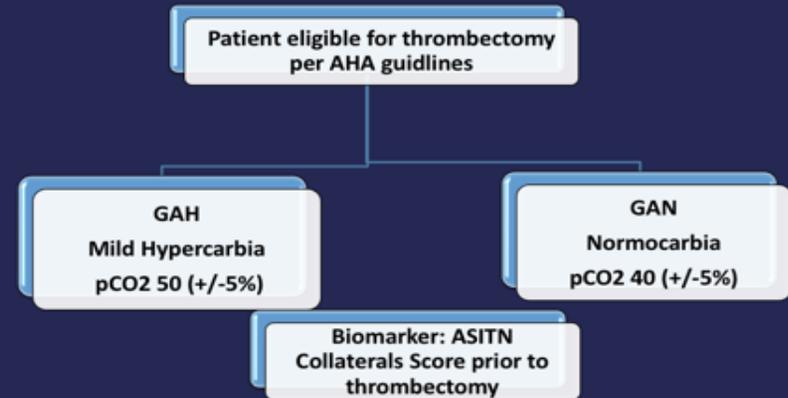
Methods

- The key elements of neuroanesthesia protocol targeted to preserve/augment cerebral collateral circulation are:
 1. Avoidance of hypotension (by using Etomidate for induction)
 2. Use of volatile anesthetics
 3. Mild hypercarbia (pCO₂ target level 50 +/- 5%)
- We plan to series of two trials (Figure) in patients who are deemed eligible for thrombectomy per AHA/ASA guidelines:
 1. SEACOAST 1 comparing GA with hypercarbia (GAH) versus standard GA with normocarbica (GAN) with a primary outcome of collateral robustness at measured at catheter angiography on the ordinal 0-4 ASITN scale. Based on results of SEACOAST 1, we plan to advance to:
 2. Pivotal SEACOAST 2 comparing the best GA strategy (GAH or GAN) versus monitored anesthesia care (MAC) focused on clinical outcome (mRS at 90 days)

Conclusions

- There are no currently proven strategies for collateral enhancement in AIS due to LVO
- The therapeutic potential of the potent vasodilatory effect of pCO₂ on the cerebral circulation is an attractive target for intervention.
- GA is an ideal environment for application of collateral therapeutics by means of controlled ventilation and hemodynamics in setting of thrombectomy

Seacoast Phase I



SEACOAST I and II study flow

