Early Experience with Transcarotid Artery Revascularization in a Veteran Population

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Disclosure

- This material is the result of work supported with resources and the use of facilities at the James A Haley VA Tampa, FL.

Introduction

- Transcarotid Artery Revascularization (TCAR)
  - Relative newcomer to carotid therapy (2012)
  - Flow reversal via extra-anatomic shunt with filtration
  - 1.4% stroke rate*
  - May be preferential for high risk patients
  - CMS coverage for symptomatic and asymptomatic patients when provider participates in SVS-VQI

*https://www.jvascsurg.org/article/S0741-5214(16)00545-0/fulltext#_blank

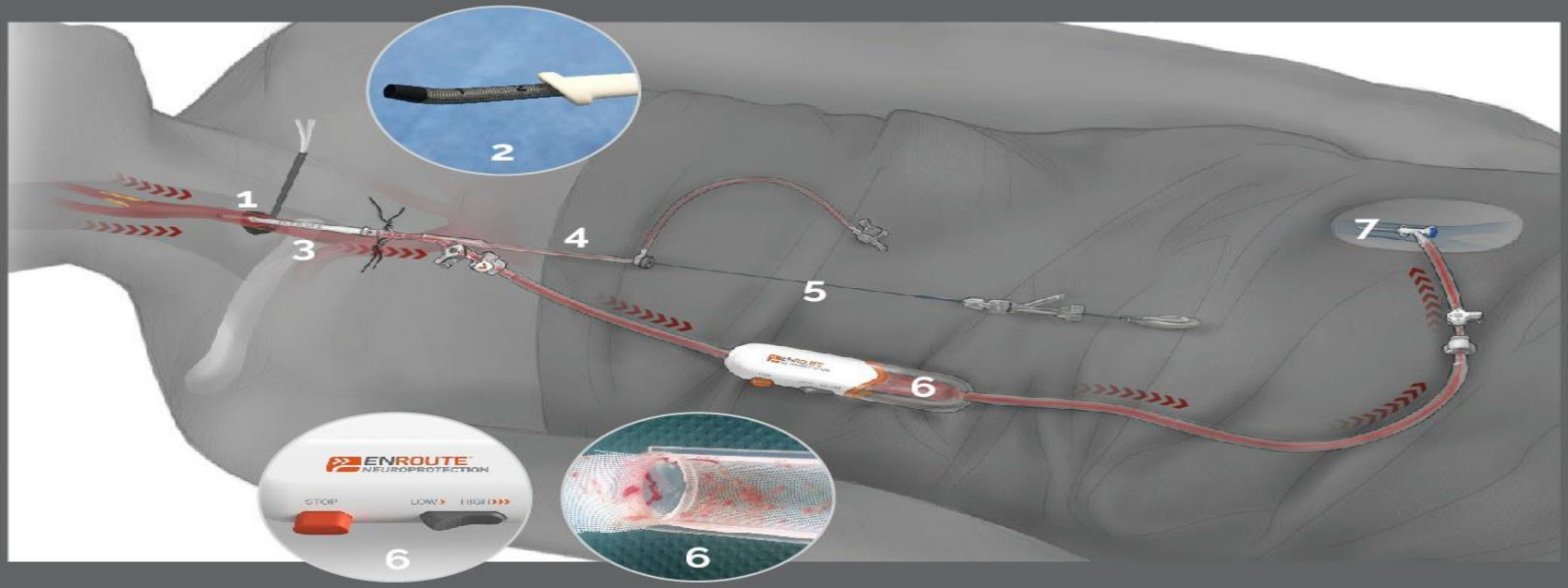
Introduction

1. 035" extra support guidewire, dilator and Uber Flex™ arterial sheath designed in combination for **atraumatic vessel entry.**

2. Angled-tip Uber Flex™ arterial sheath maintains coaxial position in lumen for **smooth interventional device delivery** and **optimized flow reversal.**

3. Uber Flex™ arterial sheath includes outer stopper with suture grooves and hub eyelets for **sheath stability.**

4. Extended working channel for interventional device delivery **enhances transcarotid ergonomics** away from image intensifier.



5. Shorter length 57cm ENROUTE Transcarotid Stent delivery system **optimizes working area** and reduces stored energy for **precise stent deployment.**

6. Dynamic flow controller **modulates reverse flow rate** and integrated, 200µ filter **captures embolic debris.**

7. Percutaneous Venous Return Sheath **completes the circuit** and returns filtered blood to the patient.

Introduction

Comorbid conditions

- Age>75
- CHF
- EF<35%
- CAD
- Unstable Angina
- MI within 6 weeks
- Abnormal stress tests
- Need for major surgery
- Uncontrolled DM
- Severe pulmonary disease
- Liver failure with elevated PT

Anatomic conditions

- Prior head and neck surgery or irradiation
- Spinal immobility
- At risk for wound infection
- Tracheostomy
- Surgically inaccessible lesion
- Laryngeal palsy
- Contralateral occlusion
- Severe tandem lesions
- Bilateral stenosis
- Dissection

Introduction

- Anatomic Considerations
  - ≥ 5 cm working length (access site to bifurcation)
  - ≥ 6 mm CCA diameter
  - Absence of severe atheromatous disease at access site (i.e. anterolateral surface of CCA)

Objective

- Describe early outcomes of initial single-institution experience with TCAR in a veteran population

Methods

- Retrospective chart review
- Single Veterans Affairs hospital
- All patients undergoing TCAR
- 18 month time period (Nov 2017- Mar 2019)

Methods

- Intervention Criteria
  - Symptomatic disease:
    - ≥50% stenosis (PSV>125, ICA/CCA>2)
  - Asymptomatic disease:
    - ≥75% stenosis (PSV> 300 cm/s; EDV> 125; ICA/CCA>4)
- Data Points
  - Demographics
  - Operative details
  - Outcomes (Stroke, MI, Cranial Nerve Injury, Death, Patency)

Results

- 24 patients
  - All patients deemed high-risk according to CMS criteria
  - 8 symptomatic (TIA, stroke or amaurosis fugax)
  - 16 asymptomatic
- Dual antiplatelet therapy and statin pre-op in 100%

Results

Cohort Characteristics	
Age	74.3 years
Male	96%
BMI	29.67(±6.88)
HTN	87.5%
HLD	95.8%
DMII	41.7%
Smoking	79.2%
CAD	62.5%
CVA	20.8%
TIA	33.3%
Obesity	37.5%
PVD	33.3%
CHF	8.3%
COPD	16.7%
CKD	20.8%

Results

- Average procedure time: 119 (±46) minutes
- Mean fluoroscopy time: 7.8 (± 4) minutes
- Mean radiation dose (dose area product): 26,304(± 8902) mGy*cm^2
- Anesthesia: General (n=7); MAC (n=17)
- Average length of stay: 2.8(±5.8) days
- Median length of stay: 1.0(range 1-30) days

Results

- 96% technical success
  - 1 conversion of TCAR to CEA for iatrogenic carotid dissection
- 1 conversion to low flow reversal due to neurologic symptoms
- 1 peri-operative stroke due to cerebral hyperperfusion syndrome

Results

Results

- No cranial nerve injuries
- No major adverse coronary events
- No deaths
- 100% patency at mean follow up of 124 (±83) days
- No reinterventions

Conclusion

- Our initial experience with TCAR is consistent with other published data
- Our data demonstrates safety and efficacy of the procedure in the veteran population
- TCAR offers an acceptable alternative to both traditional transfemoral stenting or CEA in high-risk patients with appropriate anatomy