**Impact Of Early Pelvic And Lower Limbs Reperfusion On Spinal Cord Ischemia During TAAA Endovascular Repair**


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**Disclosures**

- GE Healthcare & Cook Medical

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**Spinal Cord Ischemia**

- Devastating complication
- Thoracic and TAAA endo and open repairs
- TEVAR: pooled incidence of SCI of 4% ranged from 0% to 13%
- Variable spinal cord protection protocols
- Few studies focused on SCI after TAAA endo repair

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**AIM**

Early vs late experience in TAAA endovascular repair

Cut-off: 2010
- Annual volume > 30 pts/y
- Optimization Spinal Cord protective protocols

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**Optimization SC Protection**

1. Early restoration of the blood flow to the pelvis and lower limbs

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![Diagram of aorta and spinal cord ischemia](image)
LOWER LIMB & PELVIS ISCHEMIA

- Reperfusion Injury → edema, compartment
- Systemic Inflammatory changes

Optimization SC Protection

2. Staged procedure

Optimization SC Protection

3. Perfusion of LSA and hypogastric

Optimization SC Protection

- Cerebrospinal fluid drainage (Type 1, 2 and 3)
- Transfusion:
  - Prothrombin Time > 50%
  - Plasma fibrinogen > 2 g/l
  - Platelets > 100 G/L
  - Hb > 10 g/dl
- Hemodynamic control
  - PAM 85-90 mmHg
  - Central venous oxygen saturation >75%

RESULTS: POPULATION

2004–2013
Single centre
204 TAAA

Early experience group: 2004/2009
43 TAAA
Late experience group: 2010/2013
161 TAAA

comparable age/comorbidities
RESULTS

Early experience group N=43
Late experience group N=161

• Mortality: 11.6 % before 2010 vs 5.6 % after 2010
  (RR = 0.481 [0.17-1.36]; p = 0.09)

• Spinal Cord Ischemia: 14% vs 1.2%
  (RR = 1.148 [1.016-1.296]; p < 0.001)

• Major Complication: 35% vs 24%
  (RR = 1.1637 [0.9195-1.4728]; p = 0.11)

RESULTS Excluding Type IV

Early experience group N=24
Late experience group N=95

• Mortality: 21% vs 7.5%
  (RR = 0.3537 [0.1229-1.10175]; p = 0.06)

• Spinal Cord Ischemia: 25% vs 2% **
  (RR = 1.3053 [1.0341-1.6475]; p < 0.001)

• Major Complication: 50% vs 28% *
  (RR = 1.4316 [0.9409-2.1781]; p = 0.04)

RESULTS

Main risk factor of SCI: long-segment aortic coverage

SCI only depicted after Type I to III repairs
(1 or 2 TEVAR above F or BEVAR)

RESULTS: SCI

BEFORE 2010: 4 immediate / 2 delayed SCI
- 3 patients with severe bleeding
- 2 patients with hypogastric thrombosis

AFTER 2010: 2 delayed SCI
- 1 patient with morbid obesity, MOF
- 1 patient with hypogastric thrombosis

Collateral Network Concept

Inputs from:
- Segmental vessels
- Subclavian arteries
- Hypogastric arteries

Preservation of spinal cord integrity after extensive TAAA repair
• Spinal cord preconditioning
• Collateral network of spinal cord preservation

CONCLUSION

• Early restoration of blood flow to the pelvis
• Staged repair whenever possible
• Dedicated ICU focusing on spinal cord protection