Paraplegia after TEVAR: etiology and strategies to prevent it

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SCI
Clinical classification

Immediate ➡ motor deficits on emergence from anesthesia

Delayed ➡ Neurologic injury after a period of normal function

SCI
- Incontinence
- Recurrent urinary tract infection
- Recurrent pulmonary infection
- DVT, pulmonary embolism
- Wound dehiscence
- Bedsores
- Severe depression

Survival after SCI

DeSart et al., J Vasc Surg 2013

No relevant disclosure for this talk

Kakinohana, Anesth. 2014
**Spinal cord supply and TEVAR**

"Simultaneous coverage of more than one vascular territory is associated with postoperative paraplegia."

_Czerny, Melissano, Bertoglio et al. J Endovasc Ther 2012_

**Multi-level aortic disease: TAAA staging procedures**

- 1st Aortic step
- 2nd Visceral step

**Avoid unnecessary coverage**

- Preserve critical intercostal arteries when possible
- Preserve subclavian and hypogastric arteries

**Multi-level aortic disease**

Synchronous pathology

- Coronary reserve optimization
- Haemodynamic stability

**Optimization of SC perfusion**

- Coronary reserve optimization
- Haemodynamic stability

**Multi-level aortic disease**

TEVAR
**Coronary reserve optimization**

- Coronary Angiography
- PTCA (BMS)
- DAPT 1 month
- Coro-CT
- All Pts.

**CSFD with Liquoguard®**

- Maximized safety of drainage
- Liquoguard drains and simultaneously measure CSF pressure
- Fully automatic, Volume-controlled or Pressure-controlled CSF drainage

**Haemodynamic stability**

- Aorto-iliac injury
- Surgical conduit
- Bleeding
- Acute hearth failure
- Hypotension
- SC hypoperfusion

**Rapid pacing**

- Inadequate access site

**Controlled hypertension**

- MAP > 90 mmHg

- • Motor-evoked potentials (MEP)
- • Early neurological status assessment
MEP & SEP

Early neurological assessment

- Early (temporary) awakening in case of general anesthesia
- Prefer local anesthesia instead of spinal

SCI reduction in 576 pts.

Conclusions

Spinal cord ischemia may be reduced with extensive use of adjuncts such as:
- Spinal cord imaging
- CSFD
- Collateral pathway preservation
- Hemodynamic stability