Critical Review of Spinal Cord Protection from SCI in TAAAs – Open and Endo: Current Concepts and Future Prospects

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DISCLOSURES: NONE

Ischemic Spinal Cord Injury

No definite prevention strategy — essential for safe open and endovascular repair


INCIDENCE — SCI
Aortic X-clamping vs. SA - Occlusion

ischemic Spinal Cord Injury

Segmental Artery Occlusion

SPINAL CORD BLOOD FLOW
prior to, during and after SCP @ 28°C
Enlargement of lower thoracic and lumbar collaterals

significant changes!

WE DEVELOPED A NEW STRATEGY—
THE STAGED REPAIR

conventional repair

one stage

paraplegia rate: 20-30%

staged repair

two stages/thoracic first

100% recovery!

After total SA Occlusion: regeneration of arterial perfusion in 5 days —

Postoperative Collateral Network Pressure (CNP) as % of MAP

Postoperative Follow-Up

Bil et al. / Thoraxchirurgie. 2013 Dec;102(6 Suppl):S125-30
NEW STRATEGY TO "PRIME" THE COLLATERAL NETWORK

Preemptive Conditioning with Minimally Invasive Segmental Artery Coilembolisation (MISACE) prevents SCI

zero paraplegia after coil embolization

no histologic damage in coiled areas

'FIRST-IN-MAN' EXPERIENCE
There are several important breakthroughs relating to managing and preventing spinal cord injury that have been simultaneously brought together with the MISACE technique.

The first is that optimal perioperative management […] is not enough to prevent cord ischemia.

The second breakthrough represented by the MISACE technique is the capacity to selectively coil-embolize segmental arteries.
RCT 'PAPAartis' starting in 2017

Paraplegia Prevention in Aortic Aneurysm Repair by Thoracoabdominal Staging with 'Minimally-Invasive Segmental Artery Coil-Embolization (MISACE)': A randomized controlled multicentre open-label trial (PAPA_ARTiS)

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starting in 2017

If the theory does not fit the facts, change the facts
Albert Einstein