ARE MESH COVERED STENTS LIVING UP TO THEIR POTENTIAL FOR IMPROVING CAS OUTCOMES: RESULTS OF A RCT

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RISK OF CAS-RELATED EMBOLISM?

Risk of embolism
Filter positioning
Predilatation
Stent deployment
Nitinol expansion
Time

ARE MESH-COVERED STENTS ABLE TO CAPTURE EVERY KIND OF EMBOLISM?

DISCLOSURE

No financial conflict of interest to disclose

PLAQUE HEALING

Figure 3: Representative microscopic section of carotid artery 30 days after MEST endosystem - 20X, 0.6X. Fibrinolytic conditioning, intimal stasis, neointimal thickening. "28 days?"

REDUCTION OF PERIOPERATIVE NEUROLOGIC EMBOLIZATION

Membrane-covered stent
Distal embolic protection device
Flow-reversal embolic protection device
**PERI-PROCEDURAL BRAIN LESIONS PREVENTION IN CAS (3PCAS)**

**Aim:** to compare the rate of off-table subclinical neurological events in two groups of patients submitted to CAS with CGUARD or WALLSTENT and distal embolic protection device (Filterwire).

**Population:** patients affected by asymptomatic carotid stenosis ≥ 70% (NASCET evaluation criteria), absence of a previous brain ischemic lesion detected at DW-MRI.

**Primary outcomes measure**
- Rate of perioperative (intra and up to 72 hours postoperatively) neurological ischemic events detected by diffusion-weighted magnetic resonance imaging (DWMRI) in the two CAS groups.

ClinicalTrials.gov reg number: NCT02665585

**Secondary outcomes measures**
- Rate of perioperative (intra and up to 72 hours postoperatively) increase ≥ 0.02 µg/L in S100β and/or increase ≥ 0.3 µg/L in NSE serum levels,
- ≥ 5 variation in postprocedural MiniMentalStateExamination Test - MMSE score or MoCA test score in the two treatment groups.

**3PCAS RESULTS**

3 pts excluded for preop DWMRI lesions

58 pts randomized from January 2015 to October 2016

**Cguard (29 pts)**
- 1 minor stroke (ipsilateral lesion)
- 8 clinically silent 72h DWMRI+

31% P=0.38 24.1%

2 pts presented immediately postop DWMRI lesions
They were no more detectable at 72 hours!

**Wallstent (29 pts)**
- 7 clinically silent 72h DWMRI+

17.2% vs 24.1%

8 Cguard pts

- 4 ipsilateral
- 4 contra or bilateral

7 Wallstent pts

- 4 ipsilateral
- 3 contra or bilateral

P=0.38

31% vs 43.8%
**3PCAS RESULTS**

**DWMRI LESIONS DIAMETER**

Cguard

Mean = 3.87
SD = 1.53
95%CI 3.307 – 4.436

Wallstent

Mean = 3.56
SD = 1.07
95%CI 2.871 – 4.253

**P = 0.49**

**DWMRI LESIONS NUMBER**

≥5 in 5 CGUARD pts vs. 3 WALLSTENT pts (p=0.5)

**$S_{100B}$**

24 pts
12 pts with DWI+

**S100B X2**

p=0.072

**3PCAS RESULTS**

**MMSE AND MOCA**

$\chi^2$ 24 pts
12 pts with DWI+

p=0.012

**3PCAS POSTOP**

**MMSE AND MOCA SCORES**

$=$

**p=0.45**

**p=0.12**

**CONCLUSIONS**

Wallstent and Cguard stents showed not significant differences in microembolism rates or microemboli number at 72 postoperative hours DWMRI.

72h DWI+ were significantly associated to increase in neurobiomarkers.

≥5 lesions were significantly associated to decrease in NPTs postoperative scores in both Wallstent and Cguard groups.

Not negligible number of bilateral or contralateral lesions were detected in both stent groups.
BILATERAL OR CONTRALATERAL EMBOLISM?

TO AVOID THE ARCH

Distal embolic protection device
Flow-reversal embolic protection device
Membrane-covered stent
Stenting
Ballooning

REDUCTION OF PERIOPERATIVE NEUROLOGIC EMBOLIZATION

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