Endovascular therapies of carotid artery stenting

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Disclosure

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I do not have any potential conflict of interest
Background

Ischemic stroke is 1st cause of disability

Carotid stenosis: independent risk factor for stroke

Carotid stenting (CAS) is an effective method for stroke prevention

Aim of CAS

Dilate stenosis, reconstruct blood flow and relieve symptoms

Prevent perioperative embolic events
Diameter difference (DD) of carotid bifurcation

- DD > 2mm: 64% of patients
- DD > 4mm: 15~20% of patients
- 80% of lesions located on bifurcation
Two shaped stent used in CAS

**Straight carotid stent: SCS**

**Tapered carotid stent: TCS**
The used stent ratio of CAS

TCS with open cell

- Straight: 30%
- Taper: 70%

TCS with close cell

- Straight: 19%
- Taper: 81%

More TCS used for CAS
Advantages of TCS

More adapted to carotid morphology

Avoid excessive expansion of stent on the sinus and internal carotid artery

Lower hemodynamic depression (HD) incidence
Why

SCS showed a higher HD incidence (5%-76%)

HD increased the complications after CAS

Especially, in patients with severe stenosis and large diameter difference

So, TCS procedure might be the first choice for CAS
Some discussion

TCS showed lower HD incidence after CAS

A higher restenosis after CAS in SCS procedure

TCS showed a lower risk of restenosis and late neurological events

Some discussion

Transition section of TCS cover bifurcation lesions and avoids post-expansion (stent deformation)

TCS has few models and cannot meet clinical need

DD >50%, CEA is recommended
Case 1

Male, 72yrs

History: right ischemic stroke with left upper limb dysmotility

High risk: HBP, 2-DM, Smoking
Pre-angio

Pre-dilation

Post-dilation

Stenting:
6,8-40mm

Post-angio
Case 2

Male, 47yrs

History: right ischemic stroke with Left limb weakness

High risk: Smoking 20yrs, 20 cigarettes/d

Drinking 20yrs, 200-300ml/d
So, CEA is a better choice for this case.
conclusion

DD of carotid is common

TCS is the better choice for most CAS

However: if the DD >50%, CEA is recommended
Thank you for your attention
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