**Open-cell vs closed-cell stent design: Operators choice and echolucency in the Asymptomatic Carotid Surgery Trial-2 (ACST-2) trial.**

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ABSTRACT:

**Objective.** Carotid artery stenting (CAS) with cerebral protection is an effective treatment for carotid stenosis in appropriately selected patients. Carotid stents of different designs and configuration are now available, and can be classified into closed-cell or open-cell configuration. Closed-cell stents are characterized by small free cell areas between struts, whereas open-cell stents have larger uncovered gaps.

The Asymptomatic Carotid Surgery Trial-2 (ACST-2) is the largest on-going trial comparing CAS with carotid endarterectomy (CEA); we report how carotid plaque characteristics including echolucency (EL) are related to current choice of stent type.

**Methods:** Over 1800 patients have now been enrolled, but for this analysis we have included the 705 patients randomized to CAS with at least 1 month follow up. Stent characteristics including open, closed or hybrid and use of cerebral protection device (CPD) as well as patient baseline, plaque characteristics and specialty of interventionalist were recorded and Chi-square analysis was used to assess significance of any differences in choice of stent.

**Results:**

Using randomization, 705 patients were assigned to CAS. Most patients had 70-99% ipsilateral stenosis and ≥90% stenosis was present in 23% cases. Where echolucency was assessed, 47% of plaques were described as definitely (>25%) echolucent. Closed cell stent design was used in 43.1% cases. CPD filters in 70.9%. The majority of CAS procedures (95%) were performed by vascular surgeons and radiologists. Choice of stent type or cerebral protection device was similar for echolucent and non-echolucent plaques (*p=0.758 and p=0.312* respectively). Use of CPD devices by vascular surgeons and cardiologists was significantly higher than by neuroradiologists and radiologists (*p=0.001*)



**Conclusions:** To date, the choice of open- or closed-cell stent design in ACST-2 patients having CAS does not appear to be influenced by plaque echolucency or by the severity of ipsilateral stenosis. Currently, filter-type cerebral protection devices are more commonly deployed by vascular surgeons, whereas neuroradiologists and radiologists are less likely to use cerebral protection devices.