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AFFECTING FACTORS OF RESIDUAL STENOSIS AFTER CAROTID ARTERY STENTING

Lingyun Jia, Yang Hua, Yunlu Tao, Liqun Jiao, Lili Wang, Beibei Liu and **Weihong Hou**
Xuanwu Hospital of Capital Medical University, China

Objective: To study the relevance between the incidence of residual stenosis and carotid artery stent (CAS) characteristics by color duplex flow imaging (CDFI).

Methods: Five hundred and seventy two cases (576 stents, open or closed-cell stents) who underwent CAS from January 2013 to December 2015 were retrospectively enrolled in this study. The location of carotid stenosis (common carotid artery or internal carotid artery), characteristics of plaques (regular morphology or not; with calcification or not), the length of stent, types of carotid stent (closed or open cell), rate of stent expansion (ratio of radial expansion and axial expansion) were detected one month before and one week after stenting by CDFI. Residual stenosis is defined as the stenosis rate is equal to or greater than 30% by DSA immediately after stenting.

Results: All of 576 stents, the incidence of residual stenosis was significantly higher in group of closed loop stent (28.3%, 46/163) than in group of open loop stent (20.4%, 84/413) (2=4.15, P=0.04). There were positive correlation between the occurrence rate of residual stenosis and closed-cell stent (odd ratios, 1.54; 95% confidence interval, 1.02-2.23) and negative correlation with the radial expansion rate (odd ratios, 0.02; 95% confidence interval, 0.01-0.06). The location of carotid stenosis and the lengths of stents were not affecting the incidence of residual stenosis. Irregularly shaped plaques (odd ratios, 9.72; 95% confidence interval, 5.65-16.76) and the plaques with calcification (odd ratios, 5.21; 95% confidence interval, 3.32-8.17) were the independent risk factors of residual stenosis after CAS.

Conclusions: This study suggests that choosing a more adaptable stent based on the types of stents and the characteristics of plaques and trying to increase the radial expansion of stenting may further decrease incidence rates of residual stenosis.

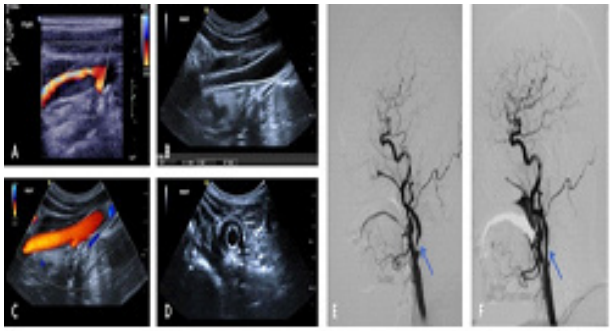

Figure 1: A: CDFI showed a severe (70-99%) stenosis at the proximal internal carotid artery; B & D: 2-D images of longitude view and cross-section view showed residual stenosis after CAS; C: CDFI showed the blood flow within the stent was smooth; E: DSA before CAS showed a severe stenosis at the proximal internal carotid artery (blue arrow); F. DSA immediately after CAS showed a residual stenosis of the stent (blue arrow).

Recent Publications

1. Csobay Novak C, Barany T, Zima E et al. (2015) Role of stent selection in the incidence of persisting hemodynamic depression after carotid artery stenting. J Endovasc Ther 22(1):122-129.
2. Fujii K, Carlier S G, Mintz G S, et al. (2005) Stent underexpansion and residual reference segment stenosis are related to stent thrombosis after sirolimus-eluting stent implantation: an intravascular ultrasound study. J Am CollCardiol 45(7):995-998.
3. Tsutsumi M, Kodama T, Aikawa H, et al. (2010) Fragmentation of calcified plaque after carotid artery stenting in heavily calcified circumferential stenosis.

Neuroradiology 52(9):831-836.

4. Itami H, Tokunaga K, Okuma Y, et al. (2013) Novel 3D-CT evaluation of carotid stent volume: greater chronological expansion of stents in patients with vulnerable plaques. Neuroradiology 55(9):1153-1160.
5. Katano H, Mase M, Nishikawa Y, et al. (2014). Surgical treatment for carotid stenosis with highly calcified palques. J Stroke Cerebrovasc Dis 23(1):148-154.

Biography

Dr. Lingyun Jia, associate professor of the Department of Vascular Ultrasonography, Xuanwu Hospital, the Capital Medical University, has excellent expertise in carotid artery ultrasound, transcranial color-coded sonography (TCCS) and transcranial Doppler (TCD). Her research focuses on the following areas: 1) Systemical evaluation of the vessel structures and hemodynamics in intracranial artery and extracranial artery by multiple-modes of ultrasound in patients with ischemic cerebrovascular diseases. 2) Evaluation of the vessel structures and hemodynamic alterations before and after carotid artery stenting and carotid endarterectomy. 3) Evaluation of internal jugular veins abnormalities by ultrasound

lingyunjia2012@163.com