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COMPARISON OF RESULTS BETWEEN CAROTID ENDARTERECTOMY VERSUS CAROTID ARTERY STENTING USING PROPENSITY SCORE MATCHING ANALYSIS

Dong Ik Kim

Sungkyunkwan University, South Korea

Objective: Debate about carotid endarterectomy (CEA) and carotid stenting (CAS) efficacies continues despite many reports. The aim of this study was to evaluate the early outcomes and restenosis rate of CEA versus CAS using propensity score matching (PSM).

Methods: Retrospective review of database was conducted for the patients who underwent CEA or CAS between January 2002 and December 2015 at a single institute. We investigated the 30-day incidence of a major adverse clinical event (MACE; defined as stroke, transient ischemic attack, myocardial infarction or death) and procedure related complication, restenosis rate during the follow up period. PSM were used to create a balanced group of CEA and CAS patient who were matched for following factors: age, gender, hypertension, diabetes, dyslipidemia, smoking, atrial fibrillation, previous percutaneous coronary intervention or coronary artery bypass grafting, valvular heart disease, contralateral carotid occlusion, degree of carotid stenosis, and symptomatic status. Comparisons of outcomes in this matched group of patients were performed using logistic regression analysis and log rank test.

Results: Among total 1184 patients (654 CEA and 530 CAS), matched groups of 452 CEA and 452 CAS were created after PSM. Within the propensity-matched group, the CAS group was showed higher 30-day incidence of MACE (7.5% vs. 2.4%; OR [odd ratio] 3.261; 95% CI [confidence interval], 1.634-6.509; p=0.001) but lower incidence of procedure related complication (1.5% vs. 5.3%; OR, 0.199; CI, 0.075-0.528; p=0.001). The CAS group showed higher restenosis rate (1.5% vs. 1.0% at 12 months, 5.4% vs. 1.2% at 24 months; p=0.008) than CEA group during the mean 49.1 months follow up period (range, 1-180 months).

Conclusion: In this study based on propensity score matching analysis, CEA showed lower 30-day incidence of major adverse clinical event and restenosis rate during the follow up period than CAS for revascularization of carotid artery stenosis.

Recent Publications

1. Kyu Hyun Han and Dong Ik Kim (2016) Enhancement of angiogenic effects by hypoxia-preconditioned human umbilical cord derived mesenchymal stem cells in a mouse ischemic limb model. Cell Biology International 40(1):27-35.
2. Ae Kyeong Kim and Dong Ik Kim (2016) Inhibitory effects of mesenchymal stem cells in intimal hyperplasia after balloon angioplasty. Journal of Vascular Surgery 63(2):510-517.
3. Seon Hee Heo and Dong Ik Kim (2015) Early results of clinical application of autologous whole bone marrow stem cell transplantation for critical limb ischemia in patients with Buerger's disease. Scientific Report 21:19690.
4. Keun Myoung Park and Dong Ik Kim (2015) Factors affecting anatomical changes after endovascular abdominal aortic aneurysm repair. Thoracic and Cardiovascular Surgery 63(2):139-45.
5. Seung Won Shin, Dong Ik Kim and Soong Ho Um (2014) A fluorescence color-encoded lipid-supported polymeric particle. Colloids and Surface B: Biointerfaces 122:840-845.

Biography

Dong Ik Kim is a Vascular Surgeon and currently holds the position of Chief of Vascular Surgery, Samsung Medical Center, Professor of Sungkyunkwan University School of Medicine, President of Korean Society for Diabetic Foot, Congress President of Diabetic Limb Salvage in Asia, President of Korean Society for Stem Cell Research, Chairman of the Board of Directors of Korean Society for Vascular Surgery. Also, he served as Congress President of 2015 Seoul UIP, President of Asian Venous Forum, President of Korean Society for Phlebology and Editor-in-Chief of *International Journal of Stem Cells*. He is a member of the American College of Surgeons, Asian Society for Vascular Surgery and many of International Societies. He has been studied in the field of stem cells for angiogenesis, tissue engineering, carotid surgery and vascular malformation. He published more than 150 international articles and about 100 domestic articles. He also published six numbers of medical textbooks as a Chief Editor.

dikim@skku.edu