Statin for carotid artery stenting

All randomized and observational English-language studies of periprocedural statin administration prior to carotid artery stenting (CAS) that reported the outcomes of interest (stroke, transient ischemic attack, myocardial infarction, and death at 30 days) were included in a random-effects meta-analysis. The I2 statistic was used to assess heterogeneity. Meta-regression analysis was performed to determine whether an association of statin treatment with risk of outcome events was influenced by other trial-level baseline characteristics of statin-treated and untreated patients.

Eleven studies comprising 4088 patients were included. Patients who received statins prior to CAS had a significantly lower risk of stroke (OR 0.39, 95% CI 0.27 to 0.58, p<0.01; I2=0%) and death (OR 0.30, 95% CI 0.10 to 0.96, p=0.042; I2=0%). Statin use was not associated with a reduced risk of transient ischemic attack or myocardial infarction. In meta-regression analysis, other trial-level baseline characteristics had no significant influence on the association of statin treatment with death or stroke.

Statin therapy prior to CAS is associated with decreased risk of perioperative stroke and death without any effect on the rates of transient ischemic attack or myocardial infarction [1].

Hong et al., enrolled a consecutive series of 397 symptomatic carotid artery stenosis (≥50% stenosis on conventional angiography) treated with carotid artery stenting at 2 tertiary university hospitals over a decade. Definition of periprocedural complications included any stroke, myocardial infarction, and death within 1 month after or during the procedure. Statin pretreatment was divided into 3 categories according to the atorvastatin equivalent dose: none (n=158; 39.8%), standard dose (<40 mg of atorvastatin, n=155; 39.0%), and high dose (≥40 mg; n=84; 21.2%). A multivariable logistic regression analysis with the generalized estimating equation method was used to investigate independent factors in periprocedural complications.

The patients' mean age was 68.7 years (81.6% men). The periprocedural complication rates across the 3 categories of statin use were 12.0%, 4.5%, and 1.2%. After adjustment, a change in the atorvastatin dose category was associated with reduction in the odds of periprocedural complications for each change in dose category (standard-dose statin: odds ratio, 0.24; 95% confidence interval, 0.07-0.81; high-dose statin: odds ratio, 0.11; 95% confidence interval, 0.01-0.96; P for trend=0.01). Administration of antiplatelet drugs was also an independent factor in periprocedural complications (OR, 0.18; 95% CI, 0.05-0.69).

This study shows that statin pretreatment may reduce the incidence of periprocedural complications dose dependently in patients with symptomatic carotid artery stenting [2].

1)
Texakalidis P, Giannopoulos S, Jonnalagadda AK, Chitale RV, Jabbour P, Armstrong EJ, Schwartz GG, Kokkinidis DG. Preoperative Use of Statins in Carotid Artery Stenting: A Systematic Review and Meta-analysis. J Endovasc Ther. 2018 Aug 13:1526602818794030. doi: 10.1177/1526602818794030. [Epub ahead of print] PubMed PMID: 30101624.
2)
Hong JH, Sohn SI, Kwak J, Yoo J, Chang HW, Kwon OK, Jung C, Chung I, Bae HJ, Lee JS, Han MK. Dose-Dependent Effect of Statin Pretreatment on Preventing the Periprocedural Complications of Carotid Artery Stenting. Stroke. 2017 Jul;48(7):1890-1894. doi: 10.1161/STROKEAHA.117.016680. Epub 2017

Jun 16. PubMed PMID: 28626049.