Mid-Term Results of 2nd and 3rd Generation Stent in Carotid Artery Stenting. A Single Center Retrospective Analysis

Diego Moniaci
Head of Vascular Surgery Service, San Giovanni Bosco Hospital, Turin

Abstract:

Introduction: According to the latest european guidelines, carotid artery stenting (CAS) has a secondary recommendation role compared to endoarterectomy in the treatment of symptomatic and asymptomatic carotid stenosis. Carotid stenting presents reduced rates of myocardial infarction but could lead to an increase in mortality rates and acute perioperative neurovascular events. The aim of our analysis is to evaluate the results of 2nd and 3rd generation stents in a real-world tertiary referral hospital

Materials and methods: The study consists of a single-center retrospective analysis. 133 consecutive patients who underwent carotid stenting with 2nd and 3rd generation stents between February 2022 and September 2024 were enrolled. Data were collected on preprocedural demographic and anamnestic characteristics, anatomical and clinical characteristics of the disease, data relating to treatment and follow-up at 30 days and over time.

Primary outcomes were technical success, mortality, freedom from neurological and non-neurological complications, freedom from restenosis and reintervention in the perioperative period, conventionally defined as 30 days – and also mortality, freedom from neurological complications, freedom from restenosis and reintervention over time. Secondary outcomes were defined as sub-analyses relevant to the primary outcomes and related to high-risk patients and adherence and effects of statin therapy. All patients were re-contacted at the end of follow-up, with no loss of data.

Results: 131 patients were successfully treated (98.4; 95% CI 94.6-99.5), of whom 25 were symptomatic (18.7%). The median follow-up was 12 months. No patients experienced cardiovascular events or death at 30 days (0; 95% CI 0-2.8). There were 17 early complications, corresponding to a rate of 12.9% (95% CI 8.2-19.8). Of these, 12 (9.1, 95% CI 5.3-15.3) were moderate complications, while 5 (3.8; 95% CI 1.6-8.6) were defined as severe complications. The 30-day stroke rate was 3/131 (2.3% - 95% CI 0.8-6.5). Of the 5 patients with severe complications, 3 (2.3; 95% CI 0.8-6.5) underwent reintervention. The 1-year survival rate was 97.1%, while at 28 months it was 93.7%. No late neurological deaths occurred. Freedom from restenosis at 12 months is 93.0% (95% CI 87.2-99.2; St. err. 0.03) while at two years it is 88.2% (95% CI 80.0-97.3; st.err 0.04). Freedom from neurological events is 99.2% (95% CI 97.6-100;) at 12 months and 97.0% at 24 months (95% CI 92.7-100). Freedom from reintervention was 98.8% (95% CI 96.3-100) at 12 months and 94.5% at 24 months (95% CI 88.4-100).