

Value of Screening Asymptomatic Carotid Artery Stenosis Prior to Coronary Artery Bypass Grafting: Analysis of the E-CABG Registry

A. Salsano¹, G. Santarpino², F. Santini¹, F. Nicolini³, M. De Feo⁴, M. Dalén⁵, T. Fischlein⁶, A. Perrotti⁷, D. Reichart⁸, G. Gatti⁹, F. Onorati¹⁰, I. Franzese¹⁰, G. Faggian¹⁰, C. Bancone⁴, S. Chocron⁷, S. Khodabandeh⁵, A. S. Rubino¹¹, D. Maselli¹², S. Nardella¹², R. Gherli¹³, M. Zanobini¹⁴, M. Saccocci¹⁴, K. Bounader¹⁵, S. Rosato¹⁶, T. Taurainen¹⁷, G. Mariscalco¹⁸, J. Airaksinen¹⁹, V. G. Ruggieri²⁰, F. Biancarli²¹

¹Division of Cardiac Surgery, Ospedale Policlinico San Martino, University of Genoa Genoa, IT,

²Cardiovascular Center, Paracelsus Medical University, Nuremberg, Germany & Città di Lecce

Hospital GVM Care&Research Lecce, IT, ³Division of Cardiac Surgery, University of Parma

Parma, IT, ⁴Department of Cardiothoracic and Respiratory Sciences, University of Campania

Napoli, IT, ⁵Department of Molecular Medicine and Surgery, Department of Cardiac Surgery,

Karolinska Institutet, Karolinska University Hospital Stockholm, SE, ⁶Cardiovascular Center,

Paracelsus Medical University Nuremberg, DE, ⁷Department of Thoracic and Cardio-Vascular

Surgery, University Hospital Jean Minjot Besançon, FR, ⁸Hamburg University Heart Center

Hamburg, Germany, ⁹Division of Cardiac Surgery, Ospedali Riuniti Trieste, IT, ¹⁰Division of

Cardiovascular Surgery, Verona University Hospital Verona, IT, ¹¹Centro Clinico-Diagnostico

“G.B. Morgagni”, Centro Cuore Pedara, IT, ¹²Department of Cardiac Surgery, St. Anna Hospital

Catanzaro, IT, ¹³Department of Cardiovascular Sciences, Cardiac Surgery Unit, S. Camillo-

Forlanini Hospital Roma, IT, ¹⁴Department of Cardiac Surgery, Centro Cardiologico -

Fondazione Monzino IRCCS, University of Milan Milano, IT, ¹⁵Division of Cardiothoracic and

Vascular Surgery, Pontchaillou University Hospital Rennes, FR, ¹⁶National Center of Global

Health, Istituto Superiore di Sanità Roma, IT, ¹⁷Department of Surgery, Oulu University

Hospital and University of Oulu Oulu, FI, ¹⁸Department of Cardiovascular Sciences, Clinical

Sciences Wing, University of Leicester, Glenfield Hospital, Leicester, UK & Division of Cardiac

Surgery, Ospedale Policlinico San Martino, University of Genoa Genoa, IT, ¹⁹Heart Center,

Turku University Hospital, and Department of Surgery, University of Turku Turku, FI, ²⁰Division

of Cardiothoracic and Vascular Surgery, Robert Debré University Hospital Reims, FR, ²¹Heart

Center, Turku University Hospital, and Department of Surgery, University of Turku &

Department of Surgery, Oulu University Hospital and University of Oulu Oulu, FI

Background and aim: The aim of this study was to evaluate the prognostic impact of asymptomatic carotid artery stenosis(CAS) in patients undergoing isolated coronary artery bypass grafting(CABG).

Methods:Patients from the multicenter, prospective E-CABG registry without history of stroke or transient ischemic attack and screened by duplex ultrasound for CAS before isolated CABG were included in this analysis.

Results:Among 2813 patients screened by duplex ultrasound for asymptomatic CAS, 11.1% had a CAS of 50-59%, 6.0% of 60-69%, 3.1% of 70-79%, 1.4% of 80-89%, 0.5% of 90-99%, and 1.1% had carotid occlusion. Postoperative stroke occurred in 25 patients(0.9%). Lesions were bilateral in five patients(25%) and ipsilateral to a CAS \geq 50% in six patients(30%). In univariate analysis, the severity of CAS was associated with a significantly increased risk of stroke($p < 0.0001$). In multivariate analysis, a CAS of 90-99%(OR 12.03, 95%CI 1.34-108.23) and the presence of an occluded internal carotid artery(OR 8.783, 95%CI 1.820-42.40) were independent predictors of stroke along with urgency of the procedure, severe-massive bleeding according to the E-CABG classification and the presence of a porcelain ascending aorta.

Conclusions: Among patients with asymptomatic CAS, the risk of stroke is significant only in patients with a stenosis \geq 90%. Since this condition has a low prevalence and when left untreated is associated with a relatively low rate of stroke, preoperative screening of asymptomatic CAS before CABG may not be justified. Instead, avoiding manipulation of

diseased ascending aorta and prevention of excessive bleeding may be more effective measures to prevent stroke after CABG.