

Acute Coronary Syndrome in Patients With a Coronary Artery Bypass Graft

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Aorto-coronary bypass and percutaneous coronary interventions have been here available for the last 40 and 30 years respectively.¹ Their benefits and potential side effects have been evaluated during the last decades through observational and randomized trials as well as international registries and several meta-analyses.^{2,3} When we consider the results of these trials and registries during the long period since the introduction of these 2 important therapeutic revascularization strategies, we always have to keep in mind several relevant variables such as the concomitant improvement in primary and secondary drug prevention, and the technical evolution that took place in the recent years in interventional therapy.

The public awareness of the risk factors through landmarks studies like Framingham, better prevention and treatment (ie, beta-blockers, angiotensin converting enzyme-inhibitors, statins, aspirin, and clopidogrel have significantly contributed to the change of the scenario of acute coronary syndrome [ACS] in the last 3 decades). In the field of surgical revascularization major improvements have been achieved (systemic use of arterial conduits for left anterior descending coronary artery revascularization, better support in cardio-anesthesia during and immediately after aorto coronary bypass, off pump interventions among others); the same holds true for percutaneous revascularization, ie, introduction of stents in the late 80's of drug eluting stents in the new millennium as well as improvement of antithrombotic prevention before and during percutaneous intervention for ACS.

The profile of the surgical patient has dramatically changed in the last decades, due to the widespread

introduction of stent therapy. The patient is usually older, with more concomitant diseases and with more advanced coronary disease. Nevertheless, the mortality figures and major adverse cardiac events (MACE) incidence in this changing scenario did not increase as expected.^{1,3} Although this may be in part referred to better surgical and anesthesiologic modalities, in the future more and more patients will be referred to surgery after having been treated with stents.

As the disease progresses with age, we will see more and more patients affected by ACS as the terminal manifestation of the end stage cardiomyopathy, while the success rate and improvement of prognosis through revascularization procedures will probably decrease.

Technical progress in percutaneous coronary interventions (ie, drug eluting stents, protection devices, thrombus aspiration) together with improved pharmacological therapy may also be expected to improve results by saving contractile mass and, as we all hope, prolong the patient's active life by slowing down disease progression. Heart failure treatment will be the real challenge for the future.

Whether coronary artery bypass grafting (CABG), with its philosophy of staying away from the disease could play a role in slowing down disease progression, remains to be demonstrated.⁴

The article of Teixeira et al in this issue of *Revista Española de Cardiología*⁵ raises the important issue of the prognosis and treatment of ACS in patients who previously underwent CABG. In spite of the relative and absolute low number of patients with previous cardiac surgical intervention studied in this single center prospective observational study, the authors were able to show that patients with previous surgical revascularization have the same prognosis in terms of mortality, re-hospitalization and freedom of MACE as the much larger control group of patients with ACS without a previous history of CABG. Both groups were amenable to an invasive percutaneous invasive strategy in a similar percentage. This is in contrast with previous data from the TIMI III subset registry⁶ but implicitly in agreement with the Global Registry of Acute

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Coronary Events (GRACE) and the Platelet Glycoprotein IIb/IIIa in Unstable Angina: Receptor Suppression Using Integrilin Therapy (PURSUIT) scores^{7,8} where previous CABG was not considered an independent predictor of poor prognosis in patients with ACS. Although, as recognized by the authors, their study was statistically unpowered and had a limited follow-up in order to definitely confirm their statement on the favorable outcome in patients with previous CABG, their data are stimulating because they underline the hypotheses of the long term benefit of a dual coronary circulation and of ischemic preconditioning and collateral circulation. The fact that the vast majority of patients with previous cardiac surgery had at least one arterial conduit (ie, for the left anterior descending coronary artery revascularization) as well documented and recently reported the portuguese cardiac surgeons⁹ and that CABG patients had a better compliance for drug prevention in accordance with the current guidelines, may furthermore explain their favorable outcome. The surprising result that CABG history was associated with more frequent episodes of unstable angina is probably related to more severe ischemia due to incomplete surgical revascularization: it remains somewhat intriguing and unexplained why this was not translated with a worse prognosis.

The authors did not expand and explore the results of their patients who were treated with “simple” medical treatment, an important percentage of the population presenting with ACS frequently associated with a favorable GRACE score. They also did not report on patients with ACS who could have been treated by CABG or by a hybrid CABG-percutaneous coronary intervention procedure, a small percentage of patients with more advanced disease who generally respond well to this strategy.

The observation by Teixeira et al⁵ however confirm the important mutual and complementary role of aggressive medical, and interventional strategies as recently recommended in the American Heart Association guidelines on ACS¹⁰ indicating a low threshold for angiography with a preferable

intervention in the native circulation, and a similar medical treatment as in the overall population

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