Percutaneous coronary intervention in diabetics with prior coronary artery bypass surgery: sweet or sour?

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There is a clear increase in the prevalence of diabetes mellitus in the western world and thus, a growing proportion of patient candidates for revascularization procedures suffer from diabetes. Following the results of trials such as BARI [1] the cardiology community has accepted that percutaneous revascularisation in diabetics, especially when they have multivessel disease, provides mediocre long-term results and that, when patients are amenable to coronary artery bypass grafting (CABG), the latter provides superior outcome, including reduced cardiac mortality (5 year cardiac mortality: 8·2% vs 23·4%). This has led to the recommendation that CABG be used for revascularization of diabetic patients and it has even been suggested that multivessel balloon angioplasty be abandoned in diabetics[2]. Yet, the picture of revascularization in these patients is not entirely black and white and data from the BARI registry show that in diabetic patients screened for randomization in the trial in whom physician or patient preference, based upon clinical and/or angiographic data, led to selection of percutaneous coronary intervention (PCI) or CABG rather than randomization, the outcomes of PCI and CABG appear similar (5-year cardiac mortality 7·5% and 6% for PCI and CABG, respectively)[3], suggesting the ability of physicians to discriminate ‘good candidates’ for either technique[4].

Thus, CABG is generally recommended for revascularization of diabetic patients with multivessel disease. However, over time, recurrent revascularization may become necessary in diabetic patients with prior CABG. There is little information on the outcomes of further revascularization at that stage.

In the present issue, Matthew et al. report on the outcomes of PCI in patients with prior CABG, and compare those outcomes in diabetic vs non-diabetic patients[5]. Using the Mayo Clinic coronary intervention- nal registry, they were able to assemble a cohort of 1153 patients with prior CABG undergoing PCI of whom 326 are diabetics. Although the cohort is large, it must be stressed that it reflects the experience from a single American centre. Therefore, extrapolation of these results to other settings, especially in Europe where the use of CABG surgery is less widespread and where patients and procedural characteristics may be different is somewhat problematic. Still this is a very valuable registry because of its size, because of the detailed information available, including long-term follow-up in 96% of the patients, and because it reflects contemporary practice with use of stents in more than 80% of the patients and a substantial use of glycoprotein IIb/IIIa inhibitors (abciximab in approximately 40% of the patients). The information provided with respect to the outcomes of PCI in these patients is contrasted.

The good news is that in patients with prior CABG in whom PCI is attempted, procedural success and in-hospital outcomes were very similar among diabetic and non-diabetic patients. More importantly, in patients with ‘single territory’ coronary artery disease at the time of PCI, diabetes did not independently influence event-free survival. This observation, which should nevertheless be accepted with caution, given the relatively small sample size of that patient subset (99 diabetic and 240 non-diabetic patients), suggests that PCI is a very valid option for additional revascularization after CABG regardless of the diabetic status of patients. Another positive note is that diabetic status had no impact on long-term outcomes.
in patients with multivessel disease, provided complete revascularization could be achieved. Thus, it is very encouraging that, in the stent era, even in diabetics with multivessel disease after CABG, PCI may be contemplated as a reasonable treatment option when additional revascularization is required.

The disturbing news is that overall, diabetics continue to fare much worse than non diabetics, with large increases in mortality at 3 years. The magnitude of this increased risk appears similar in patients with vs without prior CABG. This worse outcome of PCI in diabetics is related to the more frequent multivessel disease, to the possibility of accelerated atherogenesis or plaque progression in the vessels subjected to revascularization, even at non target sites\[6,7\], and to the greater difficulty to achieve complete revascularization in diabetics\[8\]. Previous studies have highlighted the specificity of atherothrombosis in diabetic patients and also suggested the increased propensity for plaque progression and restenosis in these patients.

From the interventionalist point of view, drug-eluting stents represent our best hope to improve the outcome of PCI in diabetics, especially in the very severe subset of patients who have undergone prior CABG, in whom complete revascularization appears so critical. This provides another reason to eagerly await the results of ongoing trials testing drug-eluting stents in diabetic patients.

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References


Management of atrial fibrillation in patients with implantable cardioverter defibrillator. Do all need a dual chamber device?

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Over the last decade, remarkable progress has been made in the field of implantable cardioverter defibrillator (ICD) therapy. There is no doubt that tiered ICD therapy with sophisticated antitachycardia pacing and defibrillation capabilities can successfully terminate nearly all sustained ventricular tachyarrhythmias\[1,2\]. Despite its appeal, the ICD is not perfect. Management of atrial fibrillation represents an urgent challenge in patients with ICD. Approximately every fourth patient receiving an ICD to treat life-threatening ventricular arrhythmias has documented atrial tachycardias before implantation. Furthermore, a large proportion of patients without prior history of