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EDITORIAL COMMENT

Evolving Concepts in the Management of Left Main Coronary Disease*

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Once again, this productive team of renowned investigators, Tiroch et al. (1), has made a substantial contribution to the advancement of medical knowledge by carrying out a thoroughly designed and rigorously conducted study with an exhaustive follow-up of its patients. The study was performed in 607 patients with unprotected left main disease treated with either a Cypher (Cordis Corp., Johnson & Johnson, Miami Lakes, Florida) or a Taxus (Boston Scientific, Natick, Massachusetts) stent; both stents having been shown to be associated with equivalent outcomes in a previous publication by the same investigators (2).

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In this issue of *JACC: Cardiovascular Interventions*, Tiroch et al. (1) chose to focus on the outcome of patients undergoing percutaneous coronary intervention (PCI) for unprotected left main coronary disease according to the technical strategy implemented.

Indeed, previous trials such as SYNTAX (Synergy Between Percutaneous Intervention With Taxus and Cardiac Surgery) (3,4) and several meta-analyses have been instrumental in lifting the long-standing taboo on alternative treatments to mandatory surgery for left main coronary artery disease by demonstrating that PCI is as effective as surgery in the treatment of left main disease as opposed to 3-vessel coronary artery disease for which surgery, compared with PCI, is still associated with significantly better outcomes. I agree with the investigators' very relevant remark that, despite these results, the proportion of patients treated by PCI, as an alternative option to coronary artery bypass graft, is still higher for those presenting with 3-vessel disease than it is for patients with unprotected left main disease.

However, although PCI for left main disease is increasingly recognized as a safe and effective treatment, there are still many uncertainties as to which technical strategy is likely to provide the best results.

Tiroch et al. (1) have undertaken to address unresolved issues regarding the optimal techniques to be applied by carrying out a thorough angiographic follow-up analysis of the entire patient cohort. As underlined by the investigators, the well-documented disadvantage of such a high rate of angiographic follow-up is that it generated a higher rate of repeat intervention, for instance, than did the SYNTAX trial, whereas the other results were equivalent. Nevertheless, the investigators were able to analyze the occurrence of restenosis according to the technique used.

What Are the Investigators' Findings?

To be able to carry out PCI in unprotected left main disease successfully, one must learn how to treat the distal left main, as it is the most frequently diseased segment.

Furthermore, they confirm a previously reported fact, namely that the presence of a true bifurcation lesion of the left main coronary artery (Medina 1,1,1) is in itself a predictor of adverse events.

Another important point is that the implantation of a single stent in the distal left main segment provides better results than does dual stenting; this confirms and is consistent with the results of several studies on coronary bifurcations (5).

With respect to dual stent implantation in the upper left main coronary artery, the culotte and T-stenting techniques are associated with similar results.

Tiroch et al. (1) also underline the fact that whereas final kissing balloon inflation does not improve the result, it does not alter it negatively either. In short, the few additional minutes spent performing kissing inflation are not completely wasted as they may prove useful should future interventions in the stented vessel become necessary.

As in all studies, there are certain limitations that should be mentioned. No additional information was collected regarding the other stenting techniques used in the setting of coronary bifurcation PCI. These techniques include the crush strategy, which is currently being progressively discarded due to its suboptimal mid- and long-term results. There are no data on the performance of dedicated stents that were not used in the study. Finally, this study does not provide any insight into the outcome of the newer generation stents such as Xience (Abbott Vascular, Santa Clara, California), or Biomatrix (Biosensors International, Singapore, Republic of Singapore) and Nobori (Terumo, Somerset, New Jersey), which have shown their superiority in reducing the rate of adverse events in high-risk patients undergoing PCI, as well

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as the occurrence of stent thrombosis compared with the first-generation devices used in the study reported here.

In theory, these new stents are considered able to push the boundaries beyond the current limit of a Syntax score >32, as it is becoming increasingly obvious that the Syntax score is stent-dependent (6). This issue will unfortunately not be addressed in the EXCEL (Evaluation of XIENCE PRIME Everolimus Eluting Stent System (EECSS) or XIENCE V EECSS or XIENCE Xpedition EECSS or XIENCE PRO EECSS Versus Coronary Artery Bypass Surgery for Effectiveness of Left Main Revascularization) study in which patient enrollment is limited by a Syntax score of 32.

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Key Words: coronary bifurcation ■ DES ■ left main coronary disease ■ PCI.