Editorial Comment

Sirolimus- Versus Paclitaxel-Eluting Stents for Unselected Patients with Coronary Artery Disease

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Millauer et al. reported that sirolimus-eluting stent (SES) decreased the incidence of major adverse cardiac events over 2 years compared with paclitaxel-eluting stent (PES) in 904 unselected patients with coronary artery stenosis [1]. In spite of a nonrandomized study design, a selection bias may be minimized, because this study has been conducted before the publication of randomized studies comparing SES and PES. The major finding of this study was in line with the previous randomized or registry studies showing the superior benefit of SES over PES in the reduction of restenosis and subsequent repeat revascularization [2]. In the meta-analysis, SES significantly reduced the risk of reintervention by 26% ($P = 0.001$) and stent thrombosis by 34% ($P = 0.02$) [2]. Because of this finding and anticipation of better safety and deliverability, the first generation drug-eluting stent (DES) has increasingly been exchanged with the second-generation DES in the current practices.

The risk of mortality or myocardial infarction has not been affected by the type of DES. However, when it comes to the incidence of repeat revascularization, there may be a difference among the diverse DES. The previous studies having mandatory angiographic follow-up showed that the limus-analog DES decreased the late loss and reintervention rate by the stronger inhibition of neointima compared with PES [2,3]. In contrast, a randomized study without mandatory angiographic surveillance showed no difference in the clinical outcomes between SES and PES [4]. This study of Millauer et al, however, suggests that greater reduction of late loss can improve clinical outcomes by the reduction of repeat revascularization in unselected patients even when angiographic follow-up was not routinely performed.

A superior benefit of SES in reduction of restenosis or repeat revascularization did not exist for a subgroup of diabetic patients. Although the mechanism is not clear, the clinical impact of SES may be less pronounced because multiple comorbidities and extensive coronary disease in diabetic patients independently influence the clinical outcomes [5]. In addition, the risk of reintervention may be underestimated, because medical treatment is occasionally adopted for complex patterns of restenosis [3]. Alternatively, antimitotic activity of limus-analog DES may be attenuated in the presence of hyperglycemia. Nonetheless, it is noteworthy that this finding of the subgroup analysis can only be regarded as exploratory. This study and all other studies showing the similarity in repeat reavascularization rate between SES and PES were performed as the post hoc subgroup analysis without adequate statistical power. In fact, results from the previous randomized studies have consistently proposed that SES may offer an angiographic and clinical advantage over PES even in patients with diabetes [6,7]. Further large randomized studies to compare diverse type of DES are required in diabetic population.

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