

INTERVENTIONAL CARDIOLOGY UPDATE

## Spot Stenting Preferable in Long Diffuse Coronary Lesions

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### ABSTRACT

The treatment of long and diffuse coronary lesions with percutaneous coronary intervention (PCI) has been problematic. Since the era of plain balloon angioplasty, lesion length has been a factor related to higher rates of restenosis and target lesion revascularization (TLR). With the advent of bare-metal stents, long and multiple stents were used to completely cover the diseased segments in order to improve outcomes. It has been shown that stenting of long coronary lesions (>20 mm) is related to significantly higher rates of TLR than more discrete lesions and lesion length remained an independent risk factor for restenosis. The risk was further increased by the multiplicity of implanted stents. Full-cover stenting of long lesions is likely to give rise to diffuse, malignant in-stent restenosis which may necessitate multiple additional PCI procedures and often bypass surgery. Thus, covering the lesion with the least number of non-overlapping stents might reduce the risks of restenosis. This strategy, called *spot stenting*, was described by Colombo and colleagues to treat discrete high-grade disease within moderately diseased vessels. It consists of implantation of short stents only in discrete tightest segments of a long lesion and has been shown to significantly reduce restenosis rates.

Drug-eluting stents (DES) have been consistently shown to reduce restenosis and the need for TLR and thus provide improved clinical efficacy compared with bare metal stents. In current practice interventionalists implant DES to cover the entire atherosclerotic lesion and the stented length tends to be longer than the lesion length. However, even with DES diffuse disease and long lesions are still associated with an increased risk of restenosis, need for TLR and major adverse cardiac events (MACE). A major long-term concern regarding DES is the potential for stent thrombosis. The SYNTAX trial showed a stent thrombosis rate of 3.3% at 1 year which suggests that complex procedures with implantation of longer and multiple stents to treat multi-vessel disease and fully cover atherosclerotic lesions may be associated with an increased risk for stent thrombosis. Overlapping of DES is also related to delayed arterial healing, inflammation persistence and malapposition which predispose to late DES thrombosis. Thus, covering long lesions with the least number of non-overlapping stents might be beneficial even when DES are used. Data are still limited, but recent reports suggest that when DES are used selective stenting of only the severely stenosed areas of long lesions reduces the risk of MACE compared to full lesion coverage.

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**KEY WORDS:** *coronary artery disease; coronary angioplasty; coronary stenting; spot stenting; drug-eluting stents*

#### ABBREVIATIONS

DES = drug-eluting stent(s)  
MACE = major adverse cardiac events  
PCI = percutaneous coronary intervention  
TLR = target lesion revascularization

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