

## **How to Optimize? Aspect of IVUS Believer**

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The most important thing of using intravascular ultrasound (IVUS) in coronary intervention is to guide interventional strategies and assess optimal stent deployment. IVUS criteria for optimization of stent implantation could resolve the problems of incomplete stent apposition and stent underexpansion, which could result in the stent restenosis and thrombosis. IVUS criteria for stent optimization includes good stent expansion, no incomplete stent apposition, and no edge dissection.

Stent underexpansion is defined as an area of inadequate stent expansion compared to the adjacent reference segments. Until now, the criteria for IVUS optimization used in different studies have relied on distal reference or on mean reference vessel for stent or postdilatation balloon sizing. The role of IVUS in the optimization of stent implantation has been established when IVUS observations revealed that incomplete stent apposition significantly contributes to early stent thrombosis occurrence. These observations led to the widespread adoption of high-pressure balloon postdilatation after stent deployment. The results of the AVID, TULIP, and SIPS support the routine use of IVUS to ensure good stent expansion and apposition when using bare-metal stent. Incomplete stent expansion and smaller minimum stent area after drug-eluting stent implantation measured by IVUS are reported to correlate with restenosis and stent thrombosis. More liberal use of IVUS can ensure an appropriate result after stent deployment, especially when concerned with approaching complex coronary lesions or patients who are theoretically at higher risk of stent thrombosis.

The rate of persistent angiographic haziness proximal or distal to the stent is approximately 15% after high-pressure stent deployment. Stent edge dissection is the most common reason. Stent edge dissection is a frequent phenomenon detected by IVUS. IVUS guidance can reduce complications occurring after PCI, especially to prevent the unnecessary deployment of additional stents.

We can achieve stent optimization by using IVUS to reduce stent underexpansion, incomplete stent apposition, and edge dissection.