

Can We Improve Outcomes of PCI Using FFR and Imaging Devices?

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Clinical application of drug-eluting stents (DES) has definitely improved the outcomes of percutaneous revascularization for patients with multi-vessel coronary disease. However, the presence of multi-vessel disease is associated with relatively high risk of major adverse cardiovascular events after DES implantation.

It is well-known that fractional flow reserve (FFR) and imaging devices such as intravascular ultrasound (IVUS) or optical coherence tomography (OCT) can provide additional physiologic and anatomic information which cannot be provided by angiography. FAME study which compared the angiography-guided and FFR-guided DES implantation for patients with multi-vessel disease showed that FFR-guided DES implantation was associated with better clinical outcomes despite less use of stents. Several other large registries also proved that the use of FFR resulted in less use of stent and better clinical outcomes. IVUS and OCT can provide the 3-dimensional anatomical insight which is very helpful for planning the revascularization strategy and fine tuning of procedures. Several meta-analyses showed that the use of IVUS could reduce stent-related events after DES implantation.

In summary, outcomes of DES implantation can be improved with the use of FFR and imaging devices. However, as both are invasive modalities, adequate understanding on the strengths and limitations of each device is essential.