Limus – Eluting Stents (Cypher, Endeavor, Xience V)

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Intracoronary stenting can reduce the complication during percutaneous coronary intervention(PCI) and restenotic rate when compared with balloon-alone angioplasty. Drug-eluting stent (DES) can reduce the restenotic rate and target lesion revascularization (TLR) rate further since early 2000. Several members of –limus family had been used as the drug component of DES, including sirolimus (Cypher stent), zotarolimus (ABT-578) (Endeavor stent) and everolimus (Xience V stent). Clinically, sirolimus was used in organ transplant patients because of its immunosuppressive effect. Pharmacologically, these drugs are G1 cell cycle inhibitors that can inhibit cell proliferation. Regarding the Cypher stent, the First in Man (FIM) study showed a minimal degree (less than 0.10 mm) of intimal hyperplasia within the stent during 4 years follow up. The RAVEL trial showed lower angiographic restenosis and TLR in patients treated with Cypher compared with patients treated with bare metal stent (BMS). The SIRIUS and New-SIRIUS studies also showed the same results as the RAVEL trial. The Endeavor stent uses a cobalt chromium stent platform, a durable, antithrombotic, phosphoryl choline (PC)-encapsulated coating, and zotarolimus. The Endeavor I study was the first clinical study to evaluate the safety and feasibility of this stent system, and the outcomes were acceptable. The Endeavor II trial compared the Endeavor stent with Driver (BMS), and showed lower restenosis, late loss and TLR in the patients treated with the Endearor stent than with the Driver stent. The Endearor III trial showed the Endearor stent had larger in-segment late loss but better procedural success rate when compared with the Cypher stent. The on-going Endearor IV trial compared the Endearor stent with the Taxus stent. The Xience V stent is comprised of the Vision cobalt chromium stent, a durable polymer coating, and everolimus, a sirolimus analog that has immunosuppressive and antiproliferative effects. The SPIRIT-First was a first-in-man single blind randomized trial that compared the safety and efficacy of the Xience V stent with BMS (Vision), and showed the Xience V stent had better angiographic and clinical results than the BMS. The on-going SPIRIT-II trial compared the Xience V stent with the Taxus stent to show the noninferiority of the Xience V stent.