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A Comparison of 1st and 2nd Generation Drug Eluting Stents in Real World Clinical Practice

[1]Yeungnam University Medical Center [2]Daegu Veterans Hospital
Jongho Nam[1],Kangun Choi[1],Kyuhwan Park[1],Jongseon Park[1],Sangwook Kang[2]

Background : The newer 2nd generation drug eluting stents (2nd-G DES) are thinner and more biocompatible than the first-generation DES (1st-G DES), thereby generating less inflammatory response and faster vessel endothelialization. This study was performed to compare the clinical and angiographic outcomes between 1st and 2nd generation DES in real world clinical practice. Methods : In this retrospective study from Yeungnam University Medical Center, we analyzed 573 patients with 738 coronary lesions treated with 1st-G DES (Cypher, Taxus, Endeavor, n=340) and 2nd-G DES (Promus, Xience V, Endeavor Resolute, n=233) between June 2008 to December 2011. Primary endpoint was the occurrence of major adverse cardiac events (MACE) defined as all-cause mortality, any myocardial infarction (MI) and/or target vessel revascularization (TVR) over a four-year follow-up period. Secondary endpoint was angiographic restenosis rate and patterns. Results : At four-year follow-up, there was no significant difference in occurrence of MACE between 1st-G DES and 2nd-G DES, respectively (19.5% in 1st-G DES vs 14.2% in 2nd-G DES, p=0.099). Similarly, no significant differences were observed in all-cause mortality (2.7% vs 0.9%, p=0.214), MI (5.9% vs 6.9%, p=0.64) and TVR (14.2% vs 10.3%, p=0.172). Stent thrombosis was not significantly different (1.8% vs 0.9%, p = 0.482). In addition, the binary restenosis rate did not differ (9.2% vs 5.7%, p = 0.084). Also, there were no significant differences in restenosis patterns (focal 61% vs 68.8%, diffuse 39.0% vs 31.2%, p=0.585). Conclusions : In real-world experience with the 1st and 2nd generation DES, both stents showed similarly good clinical and angiographic outcomes at four-year.