Abstract: P1967

Impact of strut thickness, of number of crown and connectors on clinical outcomes on patients treated with second generation DES.

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Topic(s):
Coronary Intervention: Stents

Citation:
Introduction. In new generation drug eluting stents (DESs) era, the impact of stent geometry on freedom from recurrent events has been poorly explored. Impact of struts thickness, number of crowns and connectors on clinical outcomes was evaluated in the present study.

Methods. Randomized controlled trials comparing last generation DESs were selected. The primary endpoint was the rate of target lesion revascularization (TLR), while secondary was Definite Stent Thrombosis (ST).

Results. 53 studies with 52006 patients were included. A struts thickness = 81 nm was associated with a lower incidence of TLR (2.9%: 2.4-3.4 vs. 3.6%: 3.0-4.3) and ST (0.8%: 0.6-1.1 vs. 1.3%: 0.9-1.8). A mean number of connectors > 2.5 was also associated with a lower incidence of TLR (3.2%: 2.8-3.6 vs. 3.5%: 2.9-4.2) and ST (1.0%:0.8-1.3 vs. 1.3%: 0.9-1.7 vs for ST). On the other hand, stents with average number of crowns < 7.5 did not perform better than stents with higher average number of crowns.

Conclusions. The findings of the study support that lower struts thickness and higher numbers of connectors have a positive clinical outcome reducing stent thrombosis and target lesion revascularizations, while the average number of stent crowns plays a secondary role.