TECHNOLOGY

BIODEGRADABLE POLYMERS

CRT-600.01

A Network Meta-analysis Comparing Clinical Outcomes of Thick- and Thin-Strut Biodegradable Polymer Stents with Second-Generation Drug-Eluting Stents

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BACKGROUND We performed a network meta-analysis of randomized controlled trials (RCTs) to assess the impact of biodegradable polymer stent strut thickness on clinical outcomes in patients undergoing percutaneous coronary intervention (PCI).

METHODS We searched MEDLINE/PubMed and performed a Bayesian network meta-analysis to compare outcomes of patients undergoing PCI with thin strut biodegradable polymer stents (<90 μm), thick strut biodegradable polymer stents (>90 μm), first-generation drug eluting stents (DES) and second-generation DES. Fully biodegradable scaffolds were excluded. Odds ratios with credible intervals (OR [CrIs]) were generated with random-effects models to compare outcomes.

RESULTS We identified 30 RCTs with a total of 35,067 patients. Mean age was 65 ± 11 years and 76% were male. When compared with second generation DES, thin strut biodegradable polymer stents were associated with a significant reduction in stent thrombosis (OR 0.69 [CrI 0.5-0.97]). However, thick strut biodegradable polymer stents were not associated with a reduction in stent thrombosis compared with second generation DES (OR 1.03 [CrI 0.73-1.58], **Figure 1**). When compared to second generation DES, major adverse cardiac events (MACE), myocardial infarction, target lesion revascularization, all-cause mortality, and cardiovascular death (CV death) were not significantly reduced for either the thin strut or thick strut groups.

CONCLUSION Thin strut biodegradable polymer stents (<90 μm) were associated with a significant reduction in the rate of definite or probable stent thrombosis compared to second-generation DES.

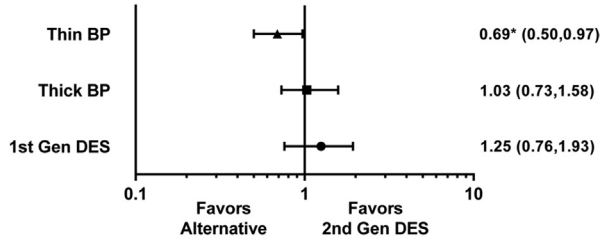

Figure 1: Forest plot comparing odds ratios of stent thrombosis in thin strut (<90μm) biodegradable polymer stents, thick strut biodegradable polymer stents (>90 μm) and first-generation drug eluting stents (DES) against second-generation DES. * Represents odds ratio and associated confidence intervals of <1.0.

BIODEGRADABLE SCAFFOLDS

CRT-600.03

Relation Between Bioresorbable Scaffold Sizing Using Qca-dmax and Clinical Outcomes at 18 Month (HMPIT Registry)

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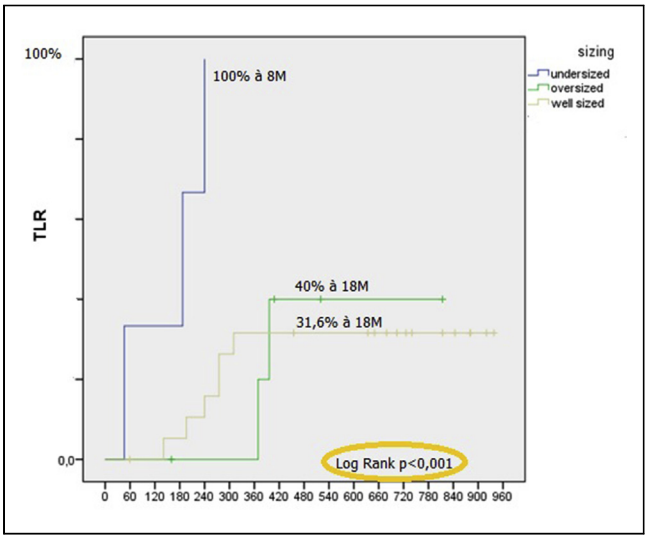
BACKGROUND Quantitative coronary angiography-maximal lumen diameter (Dmax) guided scaffold size selection has been proposed to optimize the scaffold implantation procedure. This study sought to investigate the clinical outcomes based on the assessment of QCA-Dmax.

METHODS A total of 29 patients received scaffolds in the military hospital of Tunis registry. The incidence of major adverse cardiac events (MACE) (a composite of cardiac death, any myocardial infarction [MI], and target lesion revascularization [TLR]) was analyzed according to the Dmax sub classification of scaffold.

RESULTS Pre-procedural Dmax was assessed in all cases. In four (13,8%) patients, the ratio of pre procedural Dmax to device diameter values were under 0,9 (undersized group 13,8%) whereas in 20 (69%) of patients, this ratio was between 0,9 and 1,1. The rate of MACE at 18 month was higher in the undersized and oversized groups than in the well sized group respectively 100% , 50% and 35% (Log Rank p=0,02) mainly driven by a higher TLR rate respectively 100%, 40% and 31,6% (Log Rank p<0,001) . The independent MACE determinants were both absence of IVUS guided procedure (hazard ratio [HR]: 2.72, 95% confidence interval [CI]: 0, 6 to 12,2 ; p = 0,193) and the lack of post dilatation (HR: 2.6, 95% CI: 0, 8 to 7,7 ; p = 0,086).

CONCLUSIONS Inappropriate sizing of scaffold appears to be associated with a higher 18 month MACE rate driven by more frequent TLR. The current results should be confirmed in large-scale randomized trials.



CRT-600.04

Two Generations of Bioresorbable Vascular Scaffold In Comparison: Clinical, Angiographic And Computed Tomography

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BACKGROUND Bioresorbable Vascular Scaffold (BVS) represented an innovation in the field of PCI. Some technical issues have emerged, related to "structural" limitations of the first models: fast resorption with poor vascular support; acute recoil due to low radial strength; struts fracture over nominal diameter. These issues have led to the development "second generation" BVS, with innovative features: bioresorption profile, self-correction of diameter, fracture resistance.

We assessed mid-term performances of two generations of BVS in a single Center and investigated the feasibility of Computed Tomography for non-invasive follow-up of BVSs.