CONCLUSIONS Multiple clinical, anatomical and procedural characteristics were independently associated with the occurrence of ITEs, with variable impact on early, late and very late ITE risk. First-generation DESs were associated with higher risk of very late ITE.

CATEGORIES CORONARY: Stents: Drug-Eluting
KEYWORDS Drug-eluting stent, Predicators, Women

RESULTS AND CONCLUSIONS The DFS is designed to provide controlled release of sirolimus through an internally loaded drug platform, thus eliminating the need for a polymeric matrix. RevElution is the first study to assess the vascular responses, efficacy, and safety of this novel device. One-month OCT outcomes from the RevElution study will be reported at TCT 2015, providing an early assessment of neointimal coverage and stent apposition after DFS implantation.

CATEGORIES CORONARY: Stents: Drug-Eluting
KEYWORDS Drug-eluting stent, OCT

TCT-580
Novel Drug-Filled Coronary Stent and its Impact on Mechanical Attributes
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BACKGROUND A novel drug-filled coronary stent (DFS; Medtronic, Inc., Santa Rosa, CA) provides controlled drug elution from an internally loaded drug platform without using a polymeric matrix, and thus may avoid chronic inflammation and adverse vascular responses associated with a polymer. The stent is formed from a continuous tri-layered wire with the innermost layer removed to function as a reservoir that elutes sirolimus from small holes (~20 μm) in the abluminal side of the stent. The impact of the reservoir and holes on mechanical properties of the stent and its radiopacity has not previously been reported.

METHODS Stent integrity and mechanical strength with the DFS were compared to the current generation Resolute Onyx™ drug-eluting stent (DES, Medtronic, Inc.). Radial strength was tested by measuring the force required to radially compress the stent by 1 cm after deployment in a 1.5 cm radius curved mock vessel (3.0 x 18 mm). Results are reported as average ± standard deviation. Radiopacity was tested under fluoroscopy in a porcine coronary artery model.

RESULTS The DFS had greater radial strength as Resolute Onyx DES (Figure upper left panel), and comparable resistance to longitudinal deformation (Figure upper right panel). Under fluoroscopy, the DFS had greater radiopacity than the Integrity stent™ (Figure lower left panel), and similar radiopacity as the Resolute Onyx and Omega™ stents (Figure lower right panel).

CONCLUSIONS The DFS utilizes an internally loaded drug platform to provide controlled release of sirolimus without using a polymeric matrix. Mechanical strength, as well as radiopacity, are at least comparable to current-generation DES. These in-house tests are being independently validated and will be available for presentation at TCT 2015.