METHODS AND RESULTS Patients included in a multicenter registry at 5 centers in Italy were systematically followed for major adverse cardiac events (MACE). Clinical data were obtained for 92 patients (mean age 57.1 years, 74.0% males) with a total of 95 lesions treated with overlapping Absorb BVS. Fifty-seven (61.9%) patients underwent scaffold implantation due to acute coronary syndrome. Diabetic patients were 47.7%. Multivessel disease was present in 63.0% of patients. Treated lesions were type B1 (21.3%), type B2 (23.0%), and type C (55.7%). Mean length covered by overlapping BVS was 48.0 ± 16 mm. The mean number of implanted Absorb BVS was 2.25 scaffolds per lesion and 2.63 scaffolds per patient. Angiographic and procedural success occurred in all patients. At a median follow-up of 10 months (interquartile range, 5-14.75 months), cumulative occurrence of MACE was 4.3%. Adverse events were: (1) late scaffold thrombosis (unexplained cardiac death occurring two months after elective recanalization), (2) TVR due to restenosis of drug eluting stent proximal to two overlapped scaffolds.

CONCLUSIONS Our findings suggest that treatment of long lesions by means of overlapped Absorb BVS appears to be safe at mid-term follow up.

### DRUG ELUTING STENTS

#### CBT-702

**Composite Outcomes In 2.25-mm Drug Eluting Stents: A Meta-analysis And Systematic Review**

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**BACKGROUND** Percutaneous coronary intervention (PCI) of small vessels is associated with a high restenosis rate. Drug-eluting stents (DES) reduce restenosis in coronary arteries, but the role of DES in small coronary vessels has not been well defined. In our systematic review, we aim to summarize all known angiographic and clinical outcomes of 2.25-mm DES, to highlight the need for specific outcome data in this cohort.

**METHODS** A systematic literature search of 394 relevant citations from PubMed, EMBASE, Web of Science and the Cochrane Central Register of Controlled Trials yielded 8 eligible studies studying FDA approved 2.25-mm DES. Angiographic and clinical outcome data were extracted and compared between each type of DES. Subgroup analysis comparing clinical outcome between sirolimus-eluting stents (SES) and paclitaxel-eluting stents (PES) was done using a random effects model.

**RESULTS** Of the 8 studies included in the analysis, 6 were non-randomized and 2 were randomized against bare-metal stents (BMS). A total of 1,057 patients were studied, with follow-up ranging from 1 month to 5 years. PES, SES and everolimus-eluting stents (EES) were studied. Myocardial infarction at one year was highest in PES vs. SES and EES: 4.2% vs. 2.4% and 3.7%. Target vessel revascularization at one year was highest in PES vs. SES and EES: 13.8% vs. 5.7% and 8.8%. Death rate was highest in PES vs. SES and EES: 4.2% vs. 2.4% and 1.5%. Mean late lumen loss for PES, SES, and EES was 0.28 ± 0.11 mm, 0.15 ± 0.11 mm, and 0.16 ± 0.41 mm at 9 months to 1 year. Mean diameter stenosis for PES, SES and EES was 34.7 ± 7.8%, 31.3 ± 2.1%, and 30.4 ± 6.2%, respectively. Mean late binary in-stent restenosis was higher in the BES group than PtCr-EES (18.9% vs. 7.0%, p = 0.034). This adverse angiographic outcomes were translated into worse 12-month clinical outcomes; the incidence of target lesion revascularizations (TLR: HR: 3.879, CI: 1.06-14.2, p = 0.041) and TLR-MACE (HR: 3.465, CI: 1.40-10.88, p = 0.023) BA4 were significantly higher than Ptc-EES despite of similar incidence of mortality and myocardial infarction.

**CONCLUSIONS** As compared with Ptc-EES, SES seem to be associated with higher rate of TLR and TL-MACE up to 12-month in a series of Asian population in real world clinical practice.

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### ULTRA-HYDROPHILIC STENTS

#### CBT-704

**Ultra-Hydropic Stents Promote Early Healing and Minimize Late Tissue Response: A Potential Alternative to Second-Generation Drug Eluting Stents**

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**BACKGROUND** There have been limited data comparing efficacy and safety of Bio- limus-eluting stents (BES, BioMatrix™, Biosensors and Nobori™, Terumo) with Platinum Chromium Everolimus-eluting Stent (Pct-EES, Promus Element™, Boston Scientific) in a series of Asian population in real world clinical practice.

**METHODS** A total of 626 patients (pts) receiving BES or Pct-EES were pooled from our prospective percutaneous intervention (PCI) registry from March 2010 to May 2013. To adjust potential confounders, a propensity score matched (PSM) analysis was performed using the logistic regression model, and clinical outcomes were compared between the two groups up to 12 months.

**RESULTS** After PSM analysis, 2-propensity-matched groups (149 pairs, n = 298 pts, C-statistic=0.793) were generated and the baseline characteristics of the two groups were balanced. Six to 9-month angiographic outcomes showed that the incidence of binary in-stent restenosis was higher in the BES group than Pct-EES (18.9% vs. 7.0%, p < 0.034). This adverse angiographic outcomes were translated into worse 12-month clinical outcomes; the incidence of target lesion revascularizations (TLR: HR: 3.879, CI: 1.06-14.2, p = 0.041) and TLR-MACE (HR: 3.465, CI: 1.40-10.88, p = 0.023) BA4 were significantly higher than Ptc-EES despite of similar incidence of mortality and myocardial infarction.

**CONCLUSIONS** As with Ptc-EES, SES seem to be associated with higher rate of TLR and TL-MACE up to 12-month in a series of Asian population in real world clinical practice.

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**Table. Mid-term angiographic and 12-month Clinical Outcomes after propensity score matched analysis**

**Variable** | **BES** | **EES** | **BES-PtCr-EES**
---|---|---|---
MACE | 79/298 (26.8%) | 25/298 (8.3%) | 0.0002
Death | 10/298 (3.3%) | 5/298 (1.7%) | 0.034
Cardio death | 9/298 (3.0%) | 4/298 (1.3%) | -
Scaffold thrombosis | 4/298 (1.3%) | 1/298 (0.3%) | 0.041
Acute MI | 3/298 (1.0%) | 2/298 (0.7%) | -
TVR | 20/298 (6.7%) | 12/298 (4.0%) | 0.019
Acute Limb Ischemia and TVR | 4/298 (1.3%) | 2/298 (0.7%) | -
Acute Limb Loss | 0/298 (0.0%) | 0/298 (0.0%) | -
CABG | 0/298 (0.0%) | 0/298 (0.0%) | -
Target vessel failure | 18/298 (6.0%) | 11/298 (3.7%) | 0.02
Total MACE | 37/298 (12.5%) | 19/298 (6.4%) | 0.034
TVR-MACE | 24/298 (8.0%) | 13/298 (4.4%) | 0.02
CABG-MACE | 0/298 (0.0%) | 0/298 (0.0%) | -

#### Notes

- **MACE**: Myocardial infarction, death, target vessel failure and target lesion revascularization.
- **TVR**: Target vessel revascularization.
- **Acute MI**: MI occurring <1 month.
- **Target vessel failure**: TVR + MI + death.
- **CABG-MACE**: CABG surgery + MACE.
- **CABG**: Coronary artery bypass grafting.
- **BES-PtCr-EES**: BES-PtCr-EES.
- **BES**: BioMatrix™.
- **EES**: Promus Element™.
a clinical trial under way (clinicaltrials.gov ID: NCT02728265), such surfaces may offer safe alternatives to DES, particularly in patients in whom rapid healing is crucial.

**CRT-705**

**Comparison of Biolimus A9-eluting Stent and Zotarolimus-eluting Stent in Patients with De Novo Coronary Artery Lesion: A Propensity Score-Matched Analysis**

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**BACKGROUND** There have been limited data comparing efficacy and safety of Biolimus-eluting Stents (BES, Biomatrix™, Biosensors and Noboter™, Terumo) with Zotarolimus-eluting Stent (ZES, Resolute Integrity, Medtronic) in a series of Asian population in real world clinical practice.

**METHODS** A total of 626 patients (pts) receiving BES or ZES were pooled from our prospective percutaneous coronary interventional (PCI) registry from March 2008 to May 2013. To adjust potential confounders, a propensity score matched (PSM) analysis was performed using the logistic regression model, and clinical outcomes were compared between the two groups up to 12-month.

**RESULTS** After PSM analysis, 2 propensity-matched groups (135 pairs, n=270 pts, C-statistic=0.809) were generated and the baseline characteristics of the two groups were balanced. At six to 9-month angiographic and Two-year clinical outcomes, there were similar incidence of binary in-stent restenosis and hard endpoints including mortality, myocardial infarction, target lesion revascularization (TLR), target vessel revascularization (TVR), and major adverse clinical events (MACEs,Table).

**CONCLUSIONS** In our study, BES showed similar efficacy and safety compared with ZES up to 12-months in a series of Asian population in real world clinical practice.

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**CRT-706**

**Development Of Non-invasive Coronary Wave Intensity Analysis**

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**TECHNOLOGY**

**IMAGING MODALITIES**

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**CRT-707**

**Value of Tissue Doppler Derived Velocity During Isovolumic Contraction in Assessment of Left Ventricular Viability After Low Dose Dobutamine Stress Echocardiography**

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**BACKGROUND** Differentiation of dysfunctional but viable myocardium from irreversibly damaged scar tissue has important clinical implications for patients’ ischemic heart disease and impaired left ventricular function.

**METHODS** We studied 27 male patients with ischemic cardiomyopathy (Age: 60±7 years) before and after low dose dobutamine echocardiography (LDDSE). Mitral annular isovolumic contraction velocity (IVV) was obtained from septal, lateral, anterior and inferior mitral annuli. Wall motion score index (WMSI) was averaged. We qualified patients with ischemic cardiomyopathy into 2 segments. Difference between post and pre-LDDE IVV and WMSI were calculated as d-IVV and d-WMSI.

**RESULTS** 486 segments were assessed. 14 segments were normal, and 472 were abnormal, of which 67 (14%, 33 basal, 22 mid, and 12 apical) had enhanced motion post-LDDE. Global IVV increased post compared to pre-LDDE (2.3±0.36 vs. 2.46±0.21, p=0.007). IVV increased post-LDDE (5.1±4.7 vs. 3.7±1.6 cm/s, p=0.0002). IVV of different annular positions increased similarly. IVV correlated with global WMSI (r=−0.43, p=0.028), and d-WMSI correlated with d-IVV (r=−0.43, p=0.002). 12 patients (44%) showed global viability, for whom d-IVV was always calculated from invasive measures of pressure and flow. However, recently it has become feasible to obtain coronary pressure and flow waveforms non-invasively. In this study we set out to validate non-invasive coronary wave intensity at rest and under exercise conditions.

**CONCLUSION** Coronary wave intensity analysis can be reliably measured non-invasively and responds appropriately in physiological and pathological settings. This has potential to simplify WIA assessments and increase its applicability.