



## TCT@ACC-i2: The Interventional Learning Pathway

### COMPARISONS OF EARLY PHASE ARTERIAL REACTION AFTER 2ND GENERATION DRUG-ELUTING AND BARE-METAL STENTS IMPLANTATION IN PATIENTS WITH ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION: 2-WEEK OBSERVATIONS OF OPTICAL COHERENCE TOMOGRAPHY EVALUATION

Poster Contributions

Hall C

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**Background:** Early phase arterial reaction after 2 second-generation drug-eluting stents (2nd DES) and bare-metal stent (BMS) implantation in patients with ST-segment elevated myocardial infarction (STEMI) remains unclear.

**Methods:** MECHANISM pilot study is a multi-center prospective registry enrolling 24 STEMI patients from 11 institutions who underwent everolimus-eluting stent (n=6), biolimus A9-eluting stent (n=6), zotarolimus-eluting stent (n=6), BMS (n=6) implantation. The scheduled optical coherence tomography (OCT) was performed 2 weeks after implantation and independently analyzed at core laboratory in a blinded fashion. Intra-stent thrombus was quantitatively analyzed by the maximal area and % cross-section with thrombus (the numbers of cross-section with thrombus\*100 divided by total numbers of cross-section within the stented segment).

**Results:** More than 80% of struts have been already covered 2 weeks after the index procedure regardless of stent types. There were no difference in stent diameter, minimal lumen diameter, minimal lumen area, neointimal thickness and the frequencies of malapposed and uncovered struts among the 4 groups. Amount of intra-stent thrombus did not differ among the 4 groups.

**Conclusions:** The 2-week vascular responses seem to be similar among 2nd DES and BMS in STEMI patients. Considering the possible advantage of 2nd DES in the prevention of restenosis, 2nd DES is a feasible option for the treatment of patients with STEMI.

| OCT measurements 2 weeks after stenting     |                    |                    |                    |                    |      |
|---|--------------------|--------------------|--------------------|--------------------|------|
|   | EES (n=6)          | BES (n=6)          | ZES (n=6)          | BMS (n=6)          | P    |
| Mean stent diameter (mm)                    | 3.22 (2.48 - 3.48) | 3.19 (2.71 - 3.53) | 2.97 (2.80 - 3.08) | 3.33 (2.64 - 3.75) | 0.43 |
| Minimal stent diameter (mm)                 | 2.61 (1.90 - 3.05) | 2.44 (2.19 - 3.07) | 2.48 (2.31 - 2.71) | 2.85 (2.26 - 3.37) | 0.33 |
| Minimal lumen diameter (mm)                 | 2.42 (1.89 - 2.89) | 2.33 (1.97 - 2.79) | 2.41 (2.26 - 2.58) | 2.70 (2.15 - 3.08) | 0.33 |
| Minimal lumen area (mm <sup>2</sup> )       | 5.83 (3.16 - 8.53) | 5.15 (3.86 - 8.36) | 5.65 (4.80 - 6.54) | 7.49 (3.97 - 9.67) | 0.53 |
| Neointimal thickness (mm)                   | 0.04 (0.02 - 0.10) | 0.04 (0.04 - 0.07) | 0.03 (0.02 - 0.04) | 0.04 (0.03 - 0.05) | 0.23 |
| % malapposed struts (%)                     | 1.02 (0.00 - 32.2) | 0.60 (0.00 - 0.72) | 2.02 (0.16 - 5.94) | 1.71 (0.00 - 2.56) | 0.20 |
| % uncovered struts (%)                      | 2.83 (0.58 - 13.6) | 1.97 (0.38 - 3.46) | 3.40 (1.06 - 19.8) | 2.45 (0.79 - 12.5) | 0.49 |
| Maximal area of thrombus (mm <sup>2</sup> ) | 0.45 (0.00 - 1.57) | 0.77 (0.31 - 1.83) | 0.18 (0.01 - 0.29) | 0.33 (0.02 - 0.68) | 0.06 |
| % cross-sections with thrombus (%)          | 17.2 (0.0 - 36.9)  | 27.2 (7.1 - 65.8)  | 12.1 (0.5 - 16.9)  | 25.3 (3.3 - 55.0)  | 0.20 |