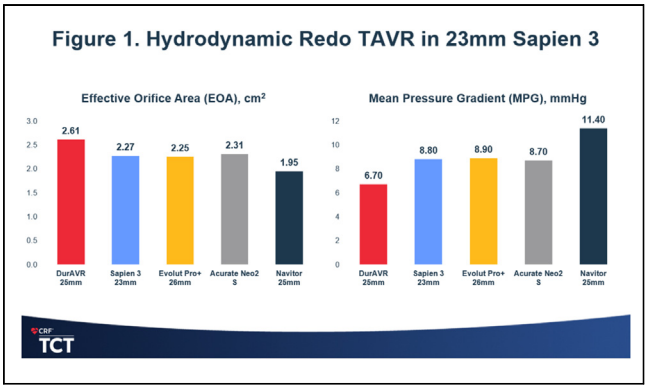
Neo2 (DurAVR 2.4 cm^2 and 8.0 mm Hg; Sapien 3: 1.9 $cm^2$and 12.2 mm Hg), and in Navitor (DurAVR 2.8 cm^2 and 6 mm Hg; Sapien 3 2.1 cm^2 and 10.4 mm Hg) THVs.



CONCLUSION The novel DurAVR showed a favorable hydrodynamic performance in all redo TAVR configurations tested compared with other commercially approved THVs.

CATEGORIES STRUCTURAL: Valvular Disease: Aortic

Session: Wire- or Catheter-Based Physiology

TCT-375

Discordance Between Hyperemic and No Hyperemic Indexes of Coronary Stenosis Severity: Development of a Mathematical Equation, Clinical Validation, and Sensitivity Analysis (HYPERDISCO Study)

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BACKGROUND Literature reports a 20% discordance between hyperemic (fractional flow reserve [FFR]) and no hyperemic (Pd/Pa) indexes of coronary stenosis lesions. This work aims to develop and test clinically a mathematical equation relating FFR and Pd/Pa to study their discordance.

METHODS We conducted a prospective, single-center, clinical study enrolling all patients undergoing full coronary physiology assessment with Coroventis CoroFlow Cardiovascular System (Abbott Vascular) to validate the developed equation: FFR/(Pd/Pa) = (IMR/BMR)(BSR + BMR)/(HSR + IMR), where IMR (BMR) is the hyperemic (basal) microvascular resistance and HSR (BSR) is the hyperemic (basal) stenosis resistance.

RESULTS A total of 33 patients were enrolled, 75% male, average age 68.2 ± 8.2 years. Mean hemodynamic data: FFR 0.85 ± 0.07, Pd/Pa 0.91 ± 0.04, BMR 66.7 ± 37.3 mm Hg*s, IMR 26.5 ± 18.9 mm Hg*s, BSR 6.3 ± 5.2 mm Hg, HSR 4.3 ± 3.3 mm Hg*s, coronary flow reserve (CFR) 2.7 ± 1.1, and resistive reserve ratio 3.0 ± 1.3. Lin's Concordance and Bland Altman showed an optimal correlation between measured and mathematical equation estimated data (LCCC: 0.98; bias: 0.004 ± 0.01; limit of agreement: -0.022 to +0.029). Sensitivity analysis showed that: 1) FFR can underestimate epicardial stenosis severity leading to FFR- vs Pd/Pa+ discordance in case of elevated IMR; 2) Pd/Pa can overestimate epicardial stenosis severity leading to FFR- vs Pd/Pa+ in the case of low BMR; 3) if BMR and IMR are both increased/decreased, FFR+ vs Pd/Pa- discordance can occur, with all indexes underestimating/overestimating the epicardial stenosis; and 4) if BSR > HSR, FFR- vs Pd/Pa+ discordance can occur, while if BSR < HSR, FFR+ vs Pd/Pa- discordance can occur.

CONCLUSION For the evaluation of epicardial stenosis severity: 1) Pd/Pa can be more reliable in case of elevated IMR; 2) FFR-CFR combination can be more reliable for low BMR occurring to compensate an epicardial stenosis; 3) FFR can be more reliable in case of high BMR and IMR, while Pd/Pa can be more reliable for low BMR and IMR; and 4) Pd/Pa-CFR combination can be more reliable when BSR > HSR, while FFR-CFR combination can be more reliable when BSR < HSR. The combination between pressure and flow indexes is more reliable when compensatory mechanisms occurs.

CATEGORIES IMAGING AND PHYSIOLOGY: Physiological Lesion Assessment

Session: Heart Failure Studies

TCT-376

Association Between Thrombogenicity and Systolic Heart Failure and Their Clinical Implication After Percutaneous Coronary Intervention

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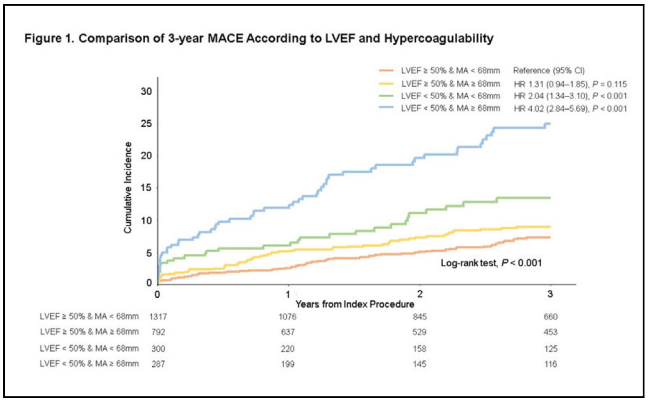
BACKGROUND After percutaneous coronary intervention (PCI), worse clinical prognosis is related with thrombogenicity and heart failure (HF). The present study evaluated thrombogenicity indices and their prognostic implications according to presence of systolic HF.

METHODS From PCI-treated patients (n = 2,696), thrombogenicity indices measured by thromboelastography (TEG) were compared according to systolic HF (LVEFpreserved [LVEF ≧50%] vs LVEFreduced [LVEF <50%] group). Major adverse cardiovascular events (MACE, a composite of all-cause death, myocardial infarction, and stroke) were evaluated for up to 3 years.

RESULTS Compared with the LVEFpreserved group, the LVEFreduced group showed higher platelet-fibrin clot strength (maximal amplitude [MA]: 65.4 ± 7.3 mm vs 67.7 ± 7.9 mm; $P < 0.001$). Index presentation with systolic HF was associated with MA value (per 1-mm increase, OR: 1.03; 95% CI: 1.02-1.04; $P < 0.001$). The presence of "high MA" (≥68 mm) and systolic HF (LVEF <50%) was synergistically associated with MACE occurrence (Figure 1). In the multivariable analysis, "high MA" was a major predictor of post-PCI MACE in the LVEFreduced group (adjusted HR: 1.78; 95% CI: 1.13-2.81; $P = 0.013$) but not in the LVEF-preserved group (adjusted HR: 1.14; 95% CI: 0.81-1.62; $P = 0.935$).



CONCLUSION Index presentation with systolic HF is significantly associated with hypercoagulability. Their combined phenotype increases the risk of post-PCI atherothrombotic event only in patients with systolic HF. These results may support individualized therapy that targets hypercoagulability for better prognosis in cases of systolic HF.

CATEGORIES OTHER: Diabetes, Lipid Disorders, and Risk Factor Management