

including age, history of hypertension and diabetes, therapies were recorded. Venous blood was drawn from all patients and NT-proBNP, cTnI, hs-CRP concentration were measured. CAG and rest G-MPI were performed in all patients to measure the LVEDV, LVESV and LVEF, and the myocardial perfusion defect area was calculated. All patients were followed within 180 days after discharge to record the major adverse cardiovascular events (MACE). According to the follow-up results, patients were assigned to MACE group and non-MACE group, the value of prognostic evaluation between myocardial perfusion defect area and NT-proBNP was analyzed by ROC curve. According to the best cut-off value of myocardial perfusion defect area which determined by ROC curve analysis, patients were divided into two groups, then drawn the Kaplan-Meier survival curve.

RESULTS 1. The myocardial perfusion defect area in STEMI patients is uncorrelated with cTnI and hs-CRP concentration ($P > 0.05$), and positive correlation with NT-proBNP concentration ($r = 0.793$, $P < 0.05$). The myocardial perfusion defect area in STEMI patients is uncorrelated with LVEDV and LVESV ($P > 0.05$), and negative correlation with LVEF ($r = -0.609$, $P < 0.05$).

2. The level of age, history of hypertension and diabetes, HDL-C, LDL-C, hs-CRP, cTnI, LVEDV, LVESV and LVEF among the MACE group and non-MACE group, had no statistically significant differences ($P > 0.05$). There were apparent differences between the MACE group and non-MACE group, which in the myocardial perfusion defect area, NT-proBNP concentration and vascular lesion, the differences were statistically significant ($P < 0.05$ or 0.01).

3. ROC curve analysis showed that the area under the curve of myocardial perfusion defect area was 0.700 (cut-off value=14.06%, sensitivity=84.2%, specificity=62.5%, Youden index=0.467, $P < 0.05$). And the area under the curve of NT-proBNP concentration was 0.644 (cut-off value=1609 ng/L, sensitivity=44.7%, specificity=87.5%, Youden index=0.322, $P < 0.05$). The difference of the area under the ROC curve among two predictors had statistically significant ($P < 0.05$). Combined testing (sensitivity=94.7%, specificity=50.0%, Youden index=0.447, $P < 0.05$).

4. There were obvious differences in MACE incidence between the two groups, the differences were statistically significant ($P < 0.05$).

CONCLUSIONS 1. The value of myocardial perfusion defect area in the prognostic evaluation of MACE with male STEMI patients was better than NT-proBNP concentration.

2. Myocardial perfusion defect area can be a predictor of risk stratification in male STEMI patients, predict the risk of MACE, and the best cut-off value of myocardial perfusion defect area was 14.06%.

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Effects of garlic on a Rabbit Model of In-Stent Neoatherosclerosis: An Optical Coherence Tomography Study

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OBJECTIVES In this study we analyse the effect of per oral administration of the time-released garlic herbal preparation on a rabbit model of in-stent neoatherosclerosis (ISNA) using optical coherence tomography (OCT).

METHODS Sirolimus-eluting stents were implanted in the right common carotid arteries of the male New Zealand white rabbits with surgical procedure and then received chow containing 1% cholesterol during the whole animal experiment. Animals were randomly divided into 2 groups (group 1 rabbits were received cholesterol-rich diet with per oral administration of the time-released garlic herbal preparation containing 300 mg garlic powder; group 2 were received just cholesterol-rich diet as control). Stented arterial segments were harvested at 12 weeks after stenting and then processed for optical coherence tomographic analysis and histology. Meanwhile, rabbits were phlebotomized and blood collected for the determination of cytokines levels.

RESULTS Compared with control subjects, the garlic-treated animals showed lower rate of lipid-rich intima and per-stent low-signal intensity layer, smaller neointimal area and neointimal thickness, larger fibrous cap thickness and minimum lumen area. The serum IL-6, IL-12, MCP-1 and TNF- α decreased and IL-10 increased in the garlic-treated groups.

CONCLUSIONS Garlic prevents the development of cholesterol-induced experimental in-stent neoatherosclerosis compared with control. Targeting of inflammatory pathways after percutaneous

coronary intervention may be an efficacious way to prevent restenosis without the long-term risk of late thrombosis.

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Semi-automatic Assessment of Normal Human Aortic Roots by Three-dimensional Transesophageal Echocardiography: Results from the SMARTER Registry

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OBJECTIVES The progress in surgery of the aortic root and the evolution of transcatheter aortic valve replacement (TAVR) as an alternative to surgical treatment in selected patients have refocused the need for quantitative imaging of the aortic root during TAVR and valve-sparing aortic root surgery. A specialized three-dimensional transesophageal echocardiography (3D-TEE) reconstruction tool has recently been introduced, which can semi-automatically configure a geometric model of the aortic root from the images obtained by 3D-TEE and performs quantitative analysis of these structures. We aimed to compare the measurements of the aortic annulus (AA) obtained by manual 3D-TEE, 3D-TEE with the specialized reconstruction tool, and multidetector computed tomography (MDCT), and the ability of the semi-automatic 3D TEE modeling software was tested.

METHODS This is a registered single-center clinical trial (ClinicalTrials.gov Identifier: NCT02724709). Patients with clinical normal aortic valve and root, who were indicated for both 3D-TEE and MDCT due to atrial fibrillation or patent foramen ovale, were prospectively enrolled. The AA diameters and area were evaluated by the conventional 3D-TEE, then analyzed by the semi-automated quantitative software (eSie Valves, Autovalve prototype version, Siemens Medical Solutions, USA). Electrocardiographic gating MDCT images were evaluated by TAVR-planning workstations (Syngo.Via v4.8, Siemens Healthineers, Germany). All parameters were measured independently with blinding methods.

RESULTS We included 68 patients, 32% female (22/68), median age 55 years old (range 22-77). We showed an excellent correlation between the measurements obtained by both manual and quantitative 3D-TEE. **Methods:** intra-class correlation coefficient (ICC): 0.701 (0.518-0.862), r : 0.742 for AA diameter and ICC: 0.723 (0.662-0.923), r : 0.723 for the AA area, with no significant differences regardless of the method used. The interobserver variability was superior for the quantitative measurements than for the manual ones. In a subgroup of 58 patients, we also found an excellent correlation between the quantitative 3D-TEE measurements and those obtained by MDCT, ICC: 0.941 (0.761-0.985), r : 0.901 for AA diameter and ICC: 0.853 (0.409-0.964), r : 0.744 for the AA area.

CONCLUSIONS The new semi-automatic 3D-TEE software allows modelling and quantifying the aortic root from 3D-TEE data with high reproducibility. There is good correlation between the semi-automatic measurements and other 3D validated techniques. Given the workflow advantages of automation, this 3D-TEE approach may enhance the clinical adoption of routine 3-dimensional imaging beyond MDCT previous to TAVR.

RELATED PHARMACEUTICAL CLINICAL RESEARCH

GW27-e0074

Use of Thymosin Beta4 and Troponin I to Predict Trastuzumab-induced Cardiotoxicity in Early Breast Cancer Patients

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OBJECTIVES Current methods to identify patients at risk for cancer therapy cardiotoxicity are inadequate.

METHODS All consecutive women with HER2-positive breast cancer and scheduled to receive adjuvant chemotherapy including anthracyclines, taxanes and trastuzumab. The biomarkers assessed in this study were high-sensitivity troponin I (hs-TnI) and thymosin β_4 (T β_4). Blood samples were obtained at baseline, three and six months.