CS (56.8% vs 72.0%; p=0.061), minimal (8.2% and 7.9%) and mean (11.7% and 11.2%; p=0.856) values of CS were comparable in the groups. The values of moderate and severe CS were higher in the group with type D (10.3% and 12.5% vs 5.8% and 2.9%, respectively; p=0.043 and p=0.011). The greatest differences in CS were revealed in the system of left coronary artery, namely in anterior interventricular branch (189.1±12.5 with type D vs 155.6±16.7 without type D; p=0.011) and circumflex branch (121.7±30.6 vs 63.8±21.7; p=0.032). According to the results of multivariate analysis the independent predictors of moderate and severe CS detection remained such indicators as the presence of CAD (OR 1.24 95% CI 1.01–1.53; p=0.04), diabetes mellitus (DM) (OR 1.28; 95% CI 1.80–3.24 p=0.02) and type D personality (OR 1.49; 95% CI 2.01–2.29 p=0.01).

**Conclusion:** The independent factors associated with moderate and severe coronary arteries calcification besides the present of CAD were DM and type D personality. The data of the present study show that even just the presence of type D personality is associated with an increase in coronary arteries calcification level and that the interventions for the correction of negative manifestations of this psychological type are relevant from this point of view either.

## P3413
### Autoimmune diabetes in adults and the risk of incident heart failure: the HUNT study in Norway

L.E.L. Laugsand[1], I.J. Janszky[2], L.J.V. Vatten[2], H.D. Dalen[1], K.M. Midthjell[2], V.G. Grill[2]. [1]Norwegian University of Science and Technology, Department of Circulation and Medical Imaging, Trondheim, Norway; [2]Norwegian University of Science and Technology, Trondheim, Norway

**Background/Introduction:** Autoimmune diabetes in adults (AIDA) is a common form of autoimmune diabetes, yet there are few studies on the risk of long term adverse cardiovascular outcomes and factors contributing to poor prognosis.

**Purpose:** We aimed to investigate the risk of heart failure (HF) in AIDA compared to type 2 diabetes, taking into account sociodemographic, lifestyle, metabolic, and glycemic risk factors.

**Methods:** We followed 64,449 participants including 2,695 with adult ($\geq$35 years) onset diabetes in the population-based Norwegian HUNT study for incident HF in hospital records during 1995–2016. Individuals with AIDA were anti-GAD positive (n=211) and those with type 2 diabetes anti-GAD negative (n=2,484).

**Results:** We identified 2,489 incident HF events during a mean follow-up of 17.7 (± 5.0) years. The risk of HF was increased in AIDA (Hazard ratio (HR) 1.72, 95% confidence interval (CI) 1.08- 2.74) and type 2 diabetes (HR 1.68, 95% CI 1.46-1.93), after adjustment for age, sex, socio-demographic and lifestyle factors, the metabolic syndrome, family history of diabetes, and previous history of myocardial infarction. Compared to type 2 diabetes, those with AIDA had more favorable metabolic profile but worse glycemic control (mean HbA1c 8.3 vs. 7.7, p<0.001). In AIDA, but not in type 2 diabetes, excess risk of HF was only seen in individuals with HbA1c $\geq$7%, did not differ depending on insulin treatment and was more pronounced in individuals with low insulin secretion.

**Conclusion:** Participants with AIDA had increased risk of HF and poor glycemic control seem to play a major role for this risk increment. This highlights the preventive potential and need for improved management of these patients.

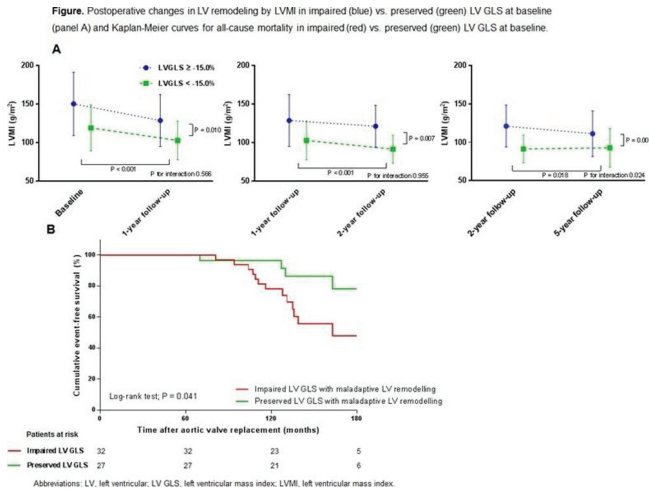## BEST POSTERS IN AORTIC VALVE

### P3415
### Influence of left ventricular global longitudinal strain and maladaptive left ventricular remodelling on prognosis of severe aortic stenosis treated with surgical aortic valve replacement

E.M. Vollema[1], A.C.T. Ng[2], A. De Weger[3], N. Ajmone Marsan[1], J.J. Bax[1], V. Delgado[1]. [1]Leiden University Medical Center, Department of Cardiology, Leiden, Netherlands; [2]Princess Alexandra Hospital, Cardiology, Brisbane, Australia; [3]Leiden University Medical Center, Department of Cardio-Thoracic Surgery, Leiden, Netherlands

**Background:** Left ventricular (LV) global longitudinal strain (GLS) has prognostic implications in aortic stenosis (AS) patients undergoing surgical aortic valve replacement (SAVR). Studies investigating the association between LV GLS, maladaptive LV remodelling and prognosis after SAVR are limited.

**Methods:** Severe AS patients undergoing SAVR were evaluated and underwent echocardiography before SAVR and at 5 [4–6] years follow-up. Patients were divided according to baseline LV GLS: impaired ($\geq$ -15%) or preserved (< -15%). Maladaptive LV remodelling was defined as a positive LV hypertrophy (LVH) index using factor analysis. Kaplan-Meier curves for cumulative event rates for all-cause mortality were calculated.

**Results:** A total of 132 severe AS patients (mean age 65±11 years, 58% male) were evaluated. Impaired LV GLS was present in 57 (43%) patients. At baseline, maladaptive LVH was more frequently present in patients with impaired LV GLS (67% vs. 33%, P<0.001). After SAVR, significant LV mass regression was observed in both the preserved and impaired LV GLS groups (Figure, panel A). At 5-year follow-up, patients with impaired LV GLS had higher LVH indices (0.4±1.1 vs. -0.3±0.8; P<0.001). Patients with impaired LV GLS and maladaptive LVH at 5 year follow-up showed a significantly increased risk for all-cause mortality compared to patients with preserved LV GLS (Figure, panel B; log-rank P=0.041).



Figure. Postoperative changes in LV remodeling by LVMI in impaired (blue) vs. preserved (green) LV GLS at baseline (panel A) and Kaplan-Meier curves for all-cause mortality in impaired (red) vs. preserved (green) LV GLS at baseline.

Abbreviations: LV: left ventricular; LV GLS: left ventricular global longitudinal strain; LVMI: left ventricular mass index.

**Conclusion:** Severe AS patients with impaired LV GLS at baseline more often have maladaptive LV remodelling after SAVR and have a worse outcome than patients with preserved LV GLS.

### P3416
### Low gradient severe aortic stenosis with preserved ejection fraction: reclassification of severity by 3D transesophageal echocardiography

A. Gonzalez Gomez, M. Abellas, J.M. Monteagudo Ruiz, R. Hinojar Baydes, A. Garcia Martin, A. Marco, E. Casas Rojo, J.J. Jimenez Nacher, J.L. Moya, S. Ruiz Leria, V. Barrios, J.L. Zamorano, C. Fernandez-Golfin. University Hospital Ramon y Cajal, Department of Cardiology, Madrid, Spain

**Background:** Low gradient severe aortic stenosis (AS) with preserved left ventricular ejection fraction (LVEF) may be due to aortic valve area (AVA) underestimation with 2D transthoracic echocardiography (TTE). We aimed to evaluate whether calculation of AVA using 3D transesophageal echocardiography (TEE) resulted in significant reclassification of AS severity.

**Methods:** Echocardiographic data was collected from 2013 to 2017. We classified the population of severe AS patients (AVA<1 cm$^2$) according to pressure gradient ($\geq$ or <40 mmHg) and flow state ($\geq$ or <35 ml/m$^2$) into four groups: Low Flow/Low Gradient (LF/LG); Low Flow/High Gradient (LF/HG); Normal Flow/Low Gradient (NF/LG); Normal Flow/High Gradient (NF/HG). Patients with LF/LG severe AS and preserved LVEF (>50%) in which a TEE had been performed where studied. AVA using 3D TEE planimetry was calculated. Measurements were performed by two different operators and interobserver reproducibility was assessed. Clinical and echocardiographic characteristics as well as BNP levels were considered.

**Results:** Forty patients with LF/LG severe AS with preserved LVEF had undergone a TEE. 90.9% of patients had hypertension, 34.1% diabetes, 20.5% smoked, 51.1% chronic renal failure, 7% chronic obstructive pulmonary disease, 46.5% coronary artery disease. Mean LVEF was 66%. During follow-up 58.1% of patients underwent aortic valve replacement. Calculation of AVA using 3D TEE planimetry reclassified 17.5% of patients into moderate AS. AVA calculated using 3D TEE showed a better correlation with BNP levels (rho spearman = -0.7740, p<0,001) than 2D TTE AVA (rho spearman = -0.3808, p=0,15). Intra-class correlation coefficient (ICC) for absolute agreement was 0.91.

**Conclusions:** Calculation of AVA using 3D TEE planimetry seems a useful tool for the subgroup of patients with low gradient severe AS with preserved LVEF where diagnosis may be challenging. In our cohort, calculation of AVA using 3D TEE planimetry reclassified 17.5% of patients into moderate AS. AVA calculated using 3D TEE showed a better correlation with BNP levels than 2D TTE AVA.

**Abstract P3413** – Table 1. Risk of heart failure

| | Events/Person-Time | Model 1 | p | Model 2 | p | Model 3 | p | Model 4 | p |
|---|---|---|---|---|---|---|---|---|---|
| No diabetes | 2.190/1.081456 | Reference | | Reference | | Reference | | Reference | |
| Type 2 diabetes | 281/36.570 | 2.13 (1.88–2.42) | <0.001 | 1.82 (1.59–2.09) | <0.001 | 1.75 (1.52–2.01) | <0.001 | 1.68 (1.46–1.93) | <0.001 |
| AIDA | 18/2.910 | 1.67 (1.05–2.66) | 0.03 | 1.64 (1.03–2.62) | 0.04 | 1.62 (1.00–2.59) | 0.04 | 1.72 (1.08–2.74) | 0.02 |
| LADA | 14/2.036 | 1.72 (1.02–2.91) | 0.04 | 1.72 (1.02–2.92) | 0.04 | 1.70 (1.00–2.88) | 0.05 | 1.80 (1.06–3.05) | 0.03 |

HRs (95% CIs) for heart failure (N=2,489) in adult-onset autoimmune diabetes, type 2 diabetes, and LADA, compared to individuals without diabetes.