ABSTRACTS
NVVC Najaarscongres
Donderdag 5 november
09.00 – 10.30 uur

SESSIE 4: Valvular Heart Disease

	Zaal: 8/9	Voorzitters: dr. Rob de Lind van Wijngaarden, CTC Amsterdam UMC dr. Kinsing Ko, Antonius Ziekenhuis Nieuwegein
1	09.00 - 09.10	**Outcomes After Combined Cardiac Surgery in Elderly Patients: a 20-Year Retrospective Single-Center Analysis** *Mevrouw Angkarina Angkasuwan, Catharina Ziekenhuis, Eindhoven*
2	09.11 - 09.21	**Mortality Dynamics in Conservatively Managed Mitral Regurgitation** *De heer Bram Ooijen, Maastricht UMC+, Maastricht*
3	09.22 - 09.32	**Pulmonary hypertension confers a residual risk despite successful mitral valve surgery in severe primary mitral valve regurgitation.** *Mevrouw Romée Heijting, Amsterdam UMC, Amsterdam*
4	09.33 - 09.43	**Uncorrected Aortic Valve Insufficiency during HeartMate 3 Implantation and Predictors of Significant Postoperative Valve Regurgitation** *Mevrouw Rengin Sabaoglu, UMC Utrecht, Utrecht*
5	09.44 - 09.54	**Impact of Deferral of Percutaneous Coronary Intervention on Quality of Life in Patients Undergoing Transcatheter Aortic Valve Implantation – A PRO-TAVI Substudy** *Mevrouw Miryam el Tahir, Amsterdam UMC, Amsterdam*
6	09.55 - 10.05	**First Dutch Multicenter Experience With Transcatheter Tricuspid Valve Replacement Using the EVOQUE System** *Mevrouw Abby Geerlings, Amsterdam UMC, Amsterdam*
7	10.06 - 10.16	**Real-World Outcomes of Percutaneous Indirect Annuloplasty for Secondary Mitral Regurgitation in the Netherlands** *Myrthe Welman, Maastricht UMC+, Maastricht*
8	10.17 - 10.27	**Minimally Invasive Transaxillary Versus Sternotomy Aortic Valve Replacement: a Propensity Score-Matched Comparison** *De heer Sándor van Straten, Isala, Zwolle*

Session 4: Valvular Heart Disease
Abstract 1

Outcomes After Combined Cardiac Surgery in Elderly Patients: a 20-Year Retrospective Single-Center Analysis

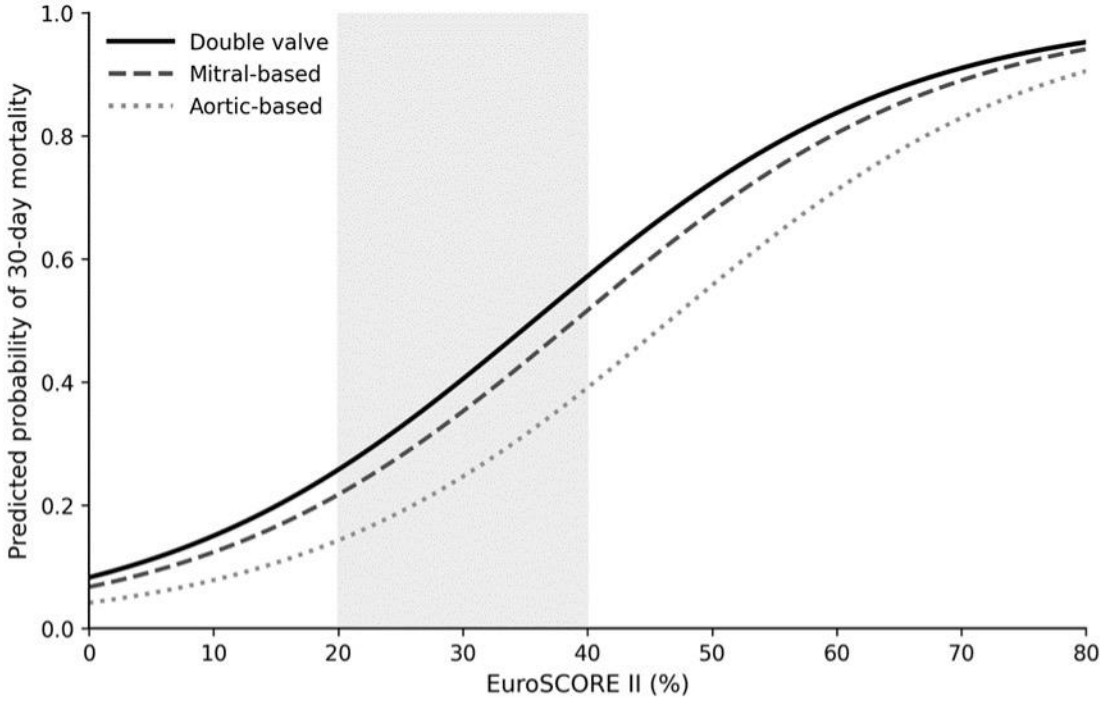
Presenting author: A. Angkasuwan
Department: Cardiothoracic surgery

A. Angkasuwan (Catharina Ziekenhuis, Eindhoven); M.M. Mokhles (UMC Utrecht, Utrecht); N.J. Verberkmoes (Catharina Ziekenhuis, Eindhoven); S.H.B. van Dijk (Catharina Ziekenhuis, Eindhoven); M.A. Soliman-Hamad (Catharina Ziekenhuis, Eindhoven)

Purpose:
Increasing numbers of patients aged ≥75 years undergo combined cardiac surgery. Risk stratification is challenging because of heterogeneity in patient vulnerability and operative complexity. We evaluated early outcomes, long-term survival, and the prognostic value of operative burden alongside EuroSCORE II.
Methods:
We retrospectively identified 1,684 patients aged ≥75 years who underwent combined cardiac surgery between 2004 and 2024 using institutional and Netherlands Heart Registration databases. Patients were stratified according to a predefined hierarchy of surgical complexity: combined aortic valve-based surgery, combined mitral valve-based surgery, and combined double mitral- and aortic valve surgery. Primary endpoints were 30-day mortality and long-term survival. Regression analyses were performed to identify factors associated with early and late mortality.
Results:
Overall 30-day mortality was 8.3%, declining from 10.6% in 2004-2014 to 4.9% in 2015-2024. Mortality increased with greater surgical complexity; however, this association was attenuated after adjustment for EuroSCORE II. Extracorporeal circulation (ECC) time ≥120 minutes independently doubled the risk of early mortality. Median survival was 7.3 years (IQR, 7.0-7.7), with 1-, 3-, 5-, and 10-year survival rates of 86.5%, 78.2%, 66.6%, and 31.7%, respectively.
Conclusion:
Among patients aged ≥75 years undergoing combined cardiac surgery, contemporary early mortality has substantially improved. Early mortality is associated primarily with the type and complexity of surgery as well as prolonged ECC duration. These operative factors provide important prognostic information beyond patient age and EuroSCORE II alone and may contribute to improved preoperative risk assessment and patient selection.

Keywords:
Cardiac surgery, Elderly, Risk stratification

Figure:
Figure 1. Predicted probability of 30-day mortality according to EuroSCORE II and complexity of combined procedure. The EuroSCORE II overestimates the risk of 30-day mortality in the subgroup AVR-based procedures,
while it underestimates the risk of 30-day mortality in both the subgroup MVR-based procedures and the subgroup double AVR+MVR- based procedures.



Session 4: Valvular Heart Disease
Abstract 2

Mortality Dynamics in Conservatively Managed Mitral Regurgitation

Presenting author: B.A.F. Ooijen
Department: Cardiology

B.A.F. Ooijen (Maastricht UMC+, Maastricht); B.A.F. Ooijen (Maastricht UMC+, Maastricht); M.J.M. Welman (Maastricht UMC+, Maastricht); S.A.F. Streukens (Maastricht UMC+, Maastricht); J. Vainer (Maastricht UMC+, Maastricht); R. Theunissen (Maastricht UMC+, Maastricht); S. Heuts (Maastricht UMC+, Maastricht); K. Vernooy (Maastricht UMC+, Maastricht); A.W.J. van 't Hof (Maastricht UMC+, Maastricht; Zuyderland Medical Centre, Heerlen); P. Sardari Nia (Maastricht UMC+, Maastricht); P.A. Vriesendorp (Maastricht UMC+, Maastricht)

Purpose:
A substantial proportion of patients with mitral regurgitation are managed conservatively after multidisciplinary Heart-Team evaluation, yet this group is treated as homogeneous and lacks prognostic stratification. We aimed to identify baseline predictors of mortality and to characterise how mortality risk is distributed over time across Heart-Team subgroups.
Methods:
In a retrospective cohort of patients with mitral regurgitation managed conservatively after evaluation by a dedicated multidisciplinary team (MDT) at a tertiary centre (2014–2022), patients were classified by the MDT-documented reason for non-intervention (non-severe mitral regurgitation, prohibitive risk, medical management, and patient preference). The primary endpoint was all-cause mortality. Survival was analysed by Kaplan–Meier and log-rank methods with an exploratory one-year landmark analysis; independent predictors were identified with a prespecified multivariable Cox model, and missing echocardiographic data were handled by multiple imputation.
Results:
Among 548 patients (median age 74 years; 53.8% secondary mitral regurgitation), 290 (52.9%) died over a median follow-up of 4.5 years; overall survival was 84.5% at 1 year, 65.5% at 3 years, and 54.9% at 5 years. Survival differed across MDT subgroups (log-rank $p < 0.001$) through distinct temporal patterns: the prohibitive-risk subgroup showed a front-loaded early hazard (1-year survival 62.9%), whereas the medical-management subgroup showed little early mortality but the lowest 5-year survival (33.1%). In a one-year landmark analysis these trajectories reordered, the medical-management subgroup becoming worst beyond one year. Six variables were independently associated with mortality, including mitral regurgitation grade (hazard ratio 1.32 per grade, 95% confidence interval 1.13–1.53; C-index 0.71). Primary and secondary mitral regurgitation showed no survival difference (log-rank $p = 0.64$).
Conclusion:
Conservatively managed mitral regurgitation carried a high but prognostically heterogeneous mortality. The MDT-documented reason for non-intervention identified two phenotypes with opposite temporal dynamics: an early-risk group (prohibitive risk) and a late-progressive group (medical management). Mitral regurgitation grade remained independently associated with mortality despite the absence of intervention. These findings support conceptualising conservative management as a decision requiring structured, time-aware reassessment.

Keywords:
Mitral regurgitation, Conservative management, Survival analysis

Session 4: Valvular Heart Disease
Abstract 3

Pulmonary hypertension confers a residual risk despite successful mitral valve surgery in severe primary mitral valve regurgitation.

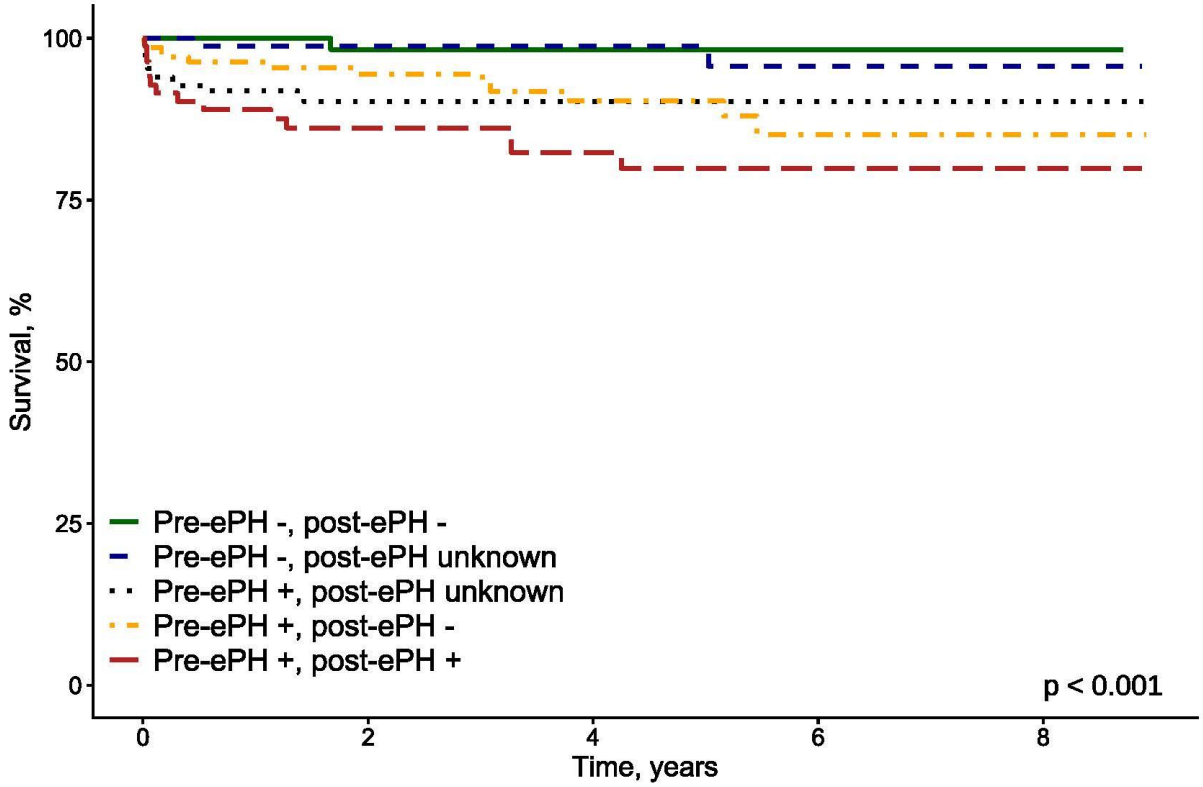
Presenting author: R.E. Heijting
Department: Cardiology

R.E. Heijting (Amsterdam UMC, Amsterdam); R.E. Heijting (Amsterdam UMC, Amsterdam); R. Lindhout (Amsterdam UMC, Amsterdam); P. Klein (Amsterdam UMC, Amsterdam); M. Oudeman (Amsterdam UMC, Amsterdam); P.R. Tuinman (VU University Medical Center, Amsterdam); S. Eberl (Amsterdam UMC, Amsterdam); A. Vonk Noordegraaf (VU University Medical Center, Amsterdam); R.J.M. Klautz (Amsterdam UMC, Amsterdam); F.W. Asselbergs (Amsterdam UMC, Amsterdam); A.F. Schmidt (Amsterdam UMC, Amsterdam); M.C. van de Veerdonk (Amsterdam UMC, Amsterdam).

Purpose:
Untreated severe primary mitral valve regurgitation (MR) carries a poor prognosis. Pulmonary hypertension (PH) frequently co-occurs with this condition and is related to mortality. Limited evidence suggest that estimated PH (ePH) by echocardiography may remain elevated after successful mitral valve surgery (MVS). The aim of this study is to evaluate the reversibility of ePH and its prognostic impact in patients that underwent MVS because of severe primary MR.
Methods:
This study included patients with severe primary MR who underwent elective MVS at two university medical centers between 2017 and 2025. The presence of ePH was evaluated on pre-and postoperative transthoracic echocardiograms and defined as the estimated systolic pulmonary artery pressure >32mmHg. The outcome was all-cause mortality.
Results:
597 patients were included (mean age 66±12 years). Over a median follow-up of 3.3 years (IQR 1.5;5.5), 43 deaths occurred, 93% (95%CI 80.9;98.5) of which were in patients with pre-operative ePH. Pre-operative ePH was significantly associated with all-cause mortality (HR 3.85, 95% CI 1.16;12.84). 22% of the patients with pre-operative ePH, had persistent ePH and the worst long-term survival (HR 4.67, 95% CI 1.03;21.12). But, even patients with reversed ePH showed worse long-term survival compared to patients without pre-operative ePH (HR 2.61, 95%CI 0.56;12.06).
Conclusion:
Pre-operative ePH is associated with an increased risk of mortality. Patients with persistent ePH experience the poorest long-term survival; however, even patients with reversed have worse long-term survival compared to patients without pre-operative ePH. Thereby, highlighting the consideration to perform surgery before the development of PH.

Keywords:
Pulmonary hypertension, Mitral valve regurgitation, Mitral valve surgery

Figure:
All-cause mortality of patients undergoing mitral valve surgery stratified by both the presence of pre- and post-operative estimated pulmonary hypertension by echocardiography.



Session 4: Valvular Heart Disease
Abstract 4

Uncorrected Aortic Valve Insufficiency during HeartMate 3 Implantation and Predictors of Significant Postoperative Valve Regurgitation

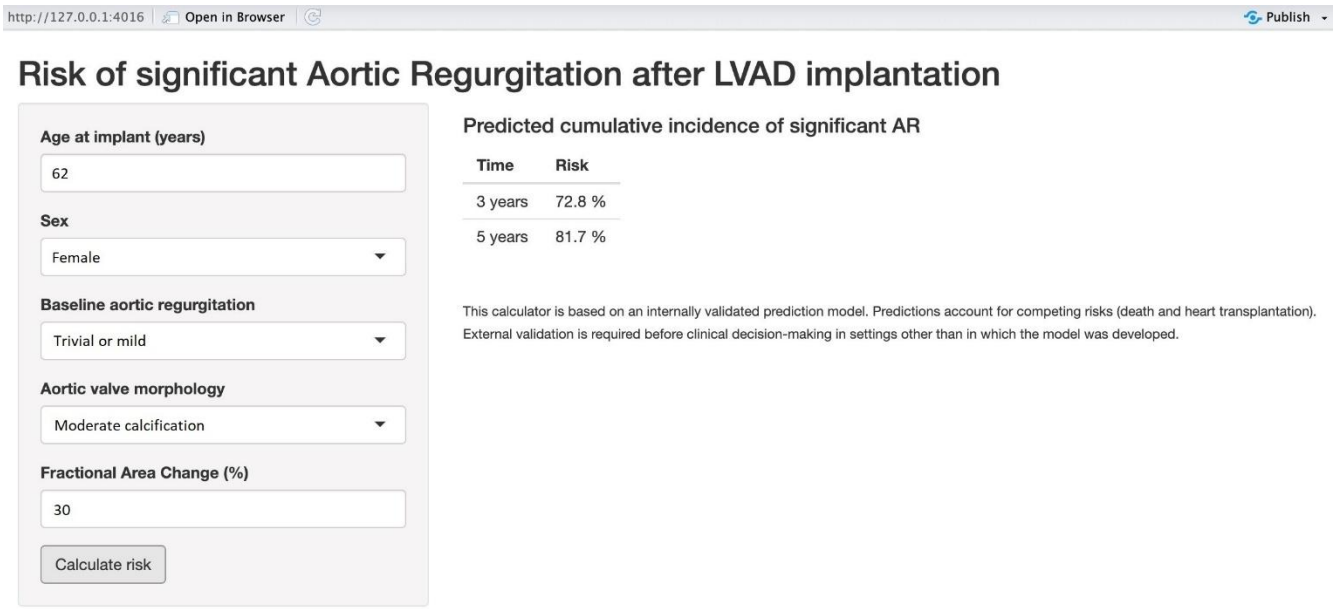
Presenting author: R. Sabaoğlu
Department: Cardiothoracic Surgery

R. Sabaoğlu (UMC Utrecht, Utrecht); S. Frittella (UMC Utrecht, Utrecht); R. Sabaoğlu (UMC Utrecht, Utrecht); S. Frittella* (UMC Utrecht, Utrecht); I. Torre (UMC Utrecht, Utrecht); M. Ciarlantini (UMC Utrecht, Utrecht); F.Z. Ramjankhan (UMC Utrecht, Utrecht); E.E.C. de Waal (UMC Utrecht, Utrecht); L.W. van Laake (UMC Utrecht, Utrecht); M. Mariani (UMC Utrecht, Utrecht); M. Guglielmo** (UMC Utrecht, Utrecht); M.M. Mokhles** (UMC Utrecht, Utrecht).*
**These authors contributed equally to this manuscript as first authors.*
***These authors contributed equally to this manuscript as last authors.*

Purpose:
Aortic regurgitation (AR) is a progressive adverse event in continuous-flow left ventricular assist device (LVAD) supported patients, leading to reduced systemic output. Current guidelines recommend concomitant aortic valve (AoV) intervention at the time of LVAD implantation for significant (≥moderate) AR, however, a grey area exists for milder AR cases. This study aims to identify predictors of significant AR after HeartMate 3 (HM3) [Abbott, Chicago, USA] implantation, to determine which patients with pre-existing less than moderate AR may still benefit from concomitant AoV surgery.
Methods:
Adult patients scheduled for primary HM3 implantation between December 2015 and July 2024 were included. AR severity was graded using conventional parameters and LVAD-specific Doppler indices. An internally validated risk calculator was developed to predict significant (≥moderate) post-operative AR, using Fine-Gray modelling.
Results:
This study included 182 patients (median age 56 years (IQR 45–62), 64.8% male). Sixty-six patients (36.3%) developed significant AR after a median HM3 support time of 1.92 years (IQR 0.99–2.43). Female sex, older age, uncorrected trivial or mild AR, moderate AoV calcification, and higher right ventricular fractional area change were identified as pre-HM3 predictors of significant post-operative AR. A well-calibrated online risk calculator was developed to predict significant AR at 3- and 5-years post-operatively (Figure 1).
Conclusion:
Significant AR develops in one-third of HM3 recipients. Patients with trivial or mild pre-existing AR—usually not considered for concomitant AoV surgery during HM3 implantation—may still be considered for concomitant intervention or preventive measures to delay AR progression, if other identified prognostic factors are present.

Keywords:
Aortic regurgitation, Echocardiography, Left ventricular assist device

Figure:
Figure 1: Online risk calculator for prediction of significant aortic regurgitation after HeartMate 3 implantation, illustrating predictor input for a high-risk patient and the corresponding estimated 3- and 5-year risks.



Session 4: Valvular Heart Disease
Abstract 5

Impact of Deferral of Percutaneous Coronary Intervention on Quality of Life in Patients Undergoing Transcatheter Aortic Valve Implantation – A PRO-TAVI Substudy

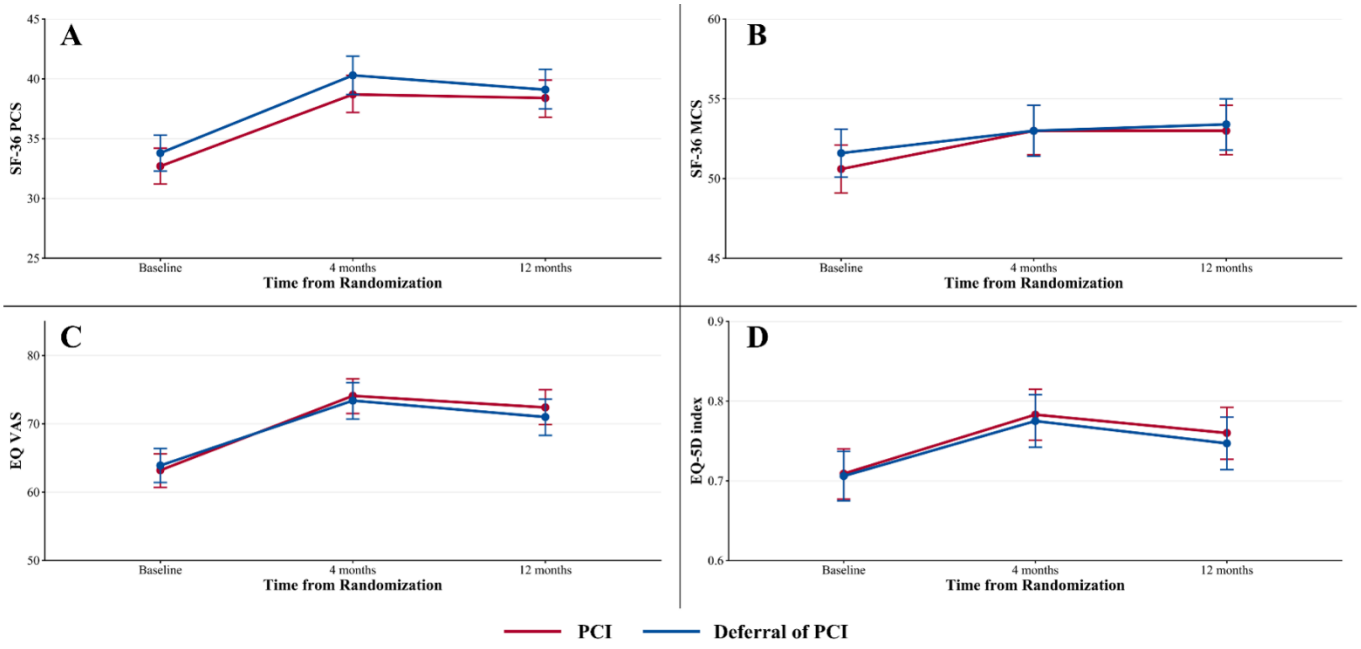
Presenting author: M. el Tahir
Department: Cardiology

G.M. Broeze; G.M. Broeze (Amsterdam UMC, Amsterdam); J. da Silva Voorham (Amsterdam UMC, Amsterdam); M. el Tahir (Amsterdam UMC, Amsterdam); H.M. Aarts (UMC Utrecht, Utrecht); M. Voskuil (UMC Utrecht, Utrecht); R. Delewi (Amsterdam UMC, Amsterdam)

Purpose:
Coronary artery disease is common in patients with severe aortic stenosis undergoing transcatheter aortic valve implantation (TAVI). This prespecified secondary analysis of the PRO-TAVI trial evaluated the impact of deferral of PCI on quality of life up to one year after randomization in patients undergoing TAVI.
Methods:
The PRO-TAVI trial was conducted at 12 centers across the Netherlands. 466 patients were enrolled and randomized in a 1:1 ratio to deferral of PCI or PCI prior to TAVI. Quality of life was assessed at baseline, 4 and 12 months after randomization using the EQ-5D index and EQ visual analogue scale (EQ VAS) of the EQ-5D-5L questionnaire, and using the physical (PCS) and mental component summary scores (MCS) of the SF-36 questionnaire.
Results:
Mean age was 80.5 ± 5.6 years, 166 (36%) patients were female, and median STS-PROM score was 3.1% (interquartile range, 1.9%–5.0%). Only the MCS in the Deferral group did not improve after 4 months (51.6 vs. 53.0; p=0.07), but it significantly improved after 12 months (51.6 vs. 53.4; p=0.03), see Figure 1. The longitudinal trajectories of the EQ VAS and EQ-5D index were similar between groups (p=0.58 and p=0.92, respectively). No between-group differences were observed for the PCS or MCS trajectories (p=0.75 and p=0.69, respectively).
Conclusion:
In patients with coronary artery disease undergoing TAVI, deferral of PCI resulted in similar quality of life outcomes compared to routine PCI before TAVI up to 12 months after randomization. These patient-reported outcome findings support PCI deferral in patients undergoing TAVI.

Keywords:
Transcatheter aortic valve implantation, Percutaneous coronary intervention, Quality of life

Figure:
Figure 1: Quality of life over time per treatment group. (A) SF-36 PCS (B) SF-36 MCS (C) EQ VAS(D) EQ-5D index



Session 4: Valvular Heart Disease
Abstract 6

First Dutch Multicenter Experience With Transcatheter Tricuspid Valve Replacement Using the EVOQUE System

Presenting author: A.E. Geerlings
Department: Cardiology

A.E. Geerlings (Amsterdam UMC, Amsterdam); A.E. Geerlings (Amsterdam UMC, Amsterdam); M. Vrijkorte (St. Antonius ziekenhuis, Nieuwegein); K.V. Lieve (Amsterdam UMC, Amsterdam); D. Robbers-Visser (Amsterdam UMC, Amsterdam); S.M. Boekholdt (Amsterdam UMC, Amsterdam); M.A. Beijk (Amsterdam UMC, Amsterdam); M.A. Vis (Amsterdam UMC, Amsterdam); S. Bouwmeester (Catharina Ziekenhuis, Eindhoven); R. Nuis (Erasmus MC, Rotterdam); F. Van der Kleij (LUMC, Leiden); B. Streukens (Maastricht UMC+, Maastricht), S. Benjamins (St. Antonius ziekenhuis, Nieuwegein); B. Rensing (St. Antonius ziekenhuis, Nieuwegein); B.J. Bouma (Amsterdam UMC, Amsterdam); L. Timmers (St. Antonius ziekenhuis, Nieuwegein); J. Baan (Amsterdam UMC, Amsterdam); M. Swaans (St. Antonius ziekenhuis, Nieuwegein)

Purpose:
Real-world data on transcatheter tricuspid valve replacement (TTVR) remain limited. We report the first nationwide Dutch experience with the EVOQUE system, evaluating procedural performance, safety, survival, and echocardiographic outcomes.
Methods:
Retrospective registry of 38 consecutive patients undergoing EVOQUE TTVR at six Dutch centres (March 2024-May 2026). Outcomes followed Tricuspid Valve Academic Research Consortium definitions. Survival was estimated by Kaplan-Meier analysis.
Results:
Median age was 77.5 years (IQR 73-81), 74% were female, and median EuroSCORE II was 4.1%. All patients had severe or greater TR, and 76% were in New York Heart Association (NYHA) functional class III/IV at baseline. Technical and device success were achieved in all patients (100%, 38/38), with procedural success in 37 (97.4%). No in-hospital deaths occurred. A new permanent pacemaker was required in 3 patients (7.9%), and major bleeding occurred in 2 (5.3%). Among 35 patients (92%) with paired echocardiographic assessment, TR was reduced to mild or less in all patients (100%; 95% CI 90-100), with no moderate or greater paravalvular leak. Among 37 patients with paired NYHA assessment, NYHA class III/IV decreased from 76% to 11% ($p<0.001$). During a median follow-up of 118 days, 9 deaths occurred; Kaplan-Meier survival was 94.7% at 30 days and 76.8% at 6 months.
Conclusion:
EVOQUE TTVR achieved high procedural success with few complications and reduced TR to mild or less in all patients with paired imaging, alongside marked early functional improvement. Early mortality was nevertheless substantial, underlining the importance of patient selection.

Keywords:
transcatheter tricuspid valve replacement, tricuspid regurgitation, EVOQUE

Figure:
Outcomes after EVOQUE transcatheter tricuspid valve replacement in 38 patients at six Dutch centers. (A) paired echocardiographic TR grade at baseline and follow-up (n=35). (B) NYHA functional class at baseline and follow-up (N=37). (C) Kaplan-Meijer estimate of all-caue survival with 95% confidence interval; numbers at risk are shown below.

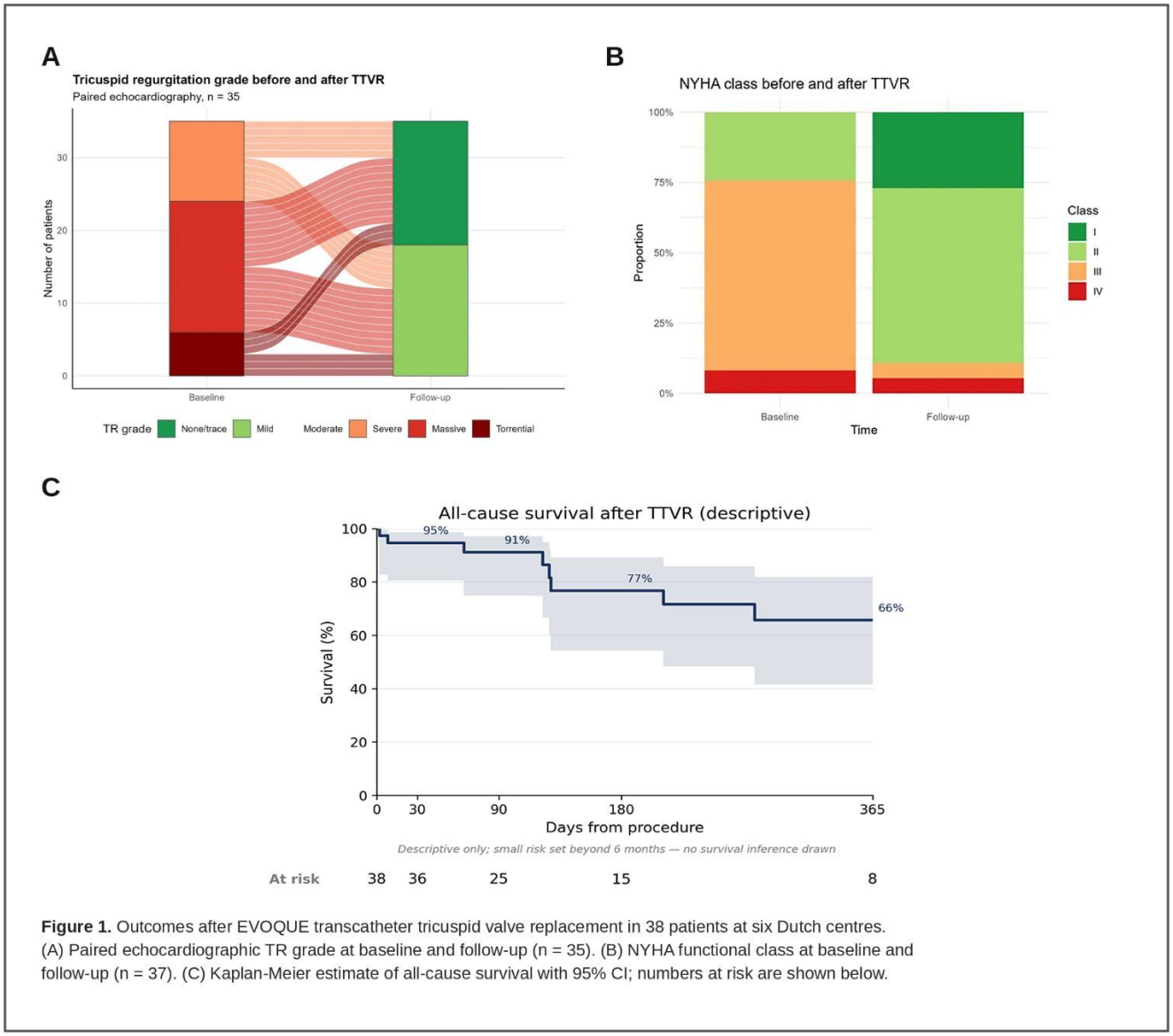


Figure 1. Outcomes after EVOQUE transcatheter tricuspid valve replacement in 38 patients at six Dutch centres. (A) Paired echocardiographic TR grade at baseline and follow-up (n = 35). (B) NYHA functional class at baseline and follow-up (n = 37). (C) Kaplan-Meier estimate of all-cause survival with 95% CI; numbers at risk are shown below.

Session 4: Valvular Heart Disease
Abstract 7

Real-World Outcomes of Percutaneous Indirect Annuloplasty for Secondary Mitral Regurgitation in the Netherlands

Presenting author: M.J.M. Welman
Department: Cardiology

M.J.M. Welman (Maastricht University Medical Center+, Maastricht); S.A.F. Streukens (Maastricht University Medical Center+, Maastricht); R.A.L.J. Theunissen (Maastricht University Medical Center+, Maastricht); J. Vainer (Maastricht University Medical Center+, Maastricht); A. van 't Hof (Maastricht University Medical Center+, Maastricht); S.M.H. Schoonbroodt (Maastricht University Medical Center+, Maastricht); M.J. Swaans (St. Antonius Hospital, Nieuwegein); M. Vrijkorte (St. Antonius Hospital, Nieuwegein); L. Timmers (St. Antonius Hospital, Nieuwegein); T.N. Vossenberg (Frisius Medical Center, Leeuwarden); P.A. Vriesendorp (Maastricht University Medical Center+, Maastricht)

Purpose:
Secondary mitral regurgitation (SMR) is common in heart failure and associated with poor outcomes. Indirect mitral annuloplasty (IMA) with the Carillon device (Cardiac Dimensions, Kirkland, WA, USA) may be an option for selected patients with significant SMR ineligible for transcatheter edge-to-edge repair (M-TEER). We evaluated its feasibility, safety, and clinical and echocardiographic outcomes in a Dutch real-world cohort.
Methods:
This retrospective multicentre study included 46 high-risk patients undergoing IMA between 2018 and 2025. Data were collected at baseline, periprocedurally, and through one-year follow-up. Longitudinal and time-to-event outcomes were analysed using mixed-effects and survival models.
Results:
Implantation of the Carillon device was achieved in 41 patients (89.1%). Coronary sinus dissection occurred in three of five non-implanted procedures. Periprocedural echocardiography showed significant reductions in mitral annular diameter and SMR severity (both $p<0.001$). Major 30-day complications included one fatal circumflex-related ischaemic event, one stroke, and one cardiac tamponade. At one year, moderate-to-severe SMR decreased from 98% to 39%. Left ventricular reverse remodelling was observed, with significant reductions in LV end-diastolic and end-systolic dimensions and volumes ($p<0.001$, $p=0.002$, $p=0.011$, and $p=0.018$, respectively), without significant change in LVEF. NYHA class III/IV decreased from 95% to 7%. One-year mortality was 17.4% (95% CI, 3.3–29.2%) and cumulative heart failure hospitalisation was 16.4% (95% CI, 3.9–28.7%). Subsequent M-TEER procedures were performed in 9.8%.
Conclusion:
IMA with Carillon was technically feasible, with few major post-procedure complications, and was associated with improvements in SMR, functional status, and LV reverse remodelling. One-year clinical outcomes in this high-risk population were consistent with previous Carillon reports.

Keywords:
Secondary mitral regurgitation, Indirect mitral annuloplasty, Left ventricular reverse remodelling

Session 4: Valvular Heart Disease
Abstract 8

Minimally Invasive Transaxillary Versus Sternotomy Aortic Valve Replacement: a Propensity Score-Matched Comparison

Presenting author: S.G. van Straten
Department: Thoraxchirurgie

S.G. van Straten; S.G. van Straten (Isala, Zwolle); M. Kuijpers (Isala, Zwolle); B.J. Kersten (Isala, Zwolle); A. Boogaart (Isala, Zwolle); E.S. Farag (Isala, Zwolle); R.S. Hermanides (Isala, Zwolle); M. van Leeuwen (Isala, Zwolle); M.W. Pieraets (Isala, Zwolle); J.R. Olsthoorn (Isala, Zwolle)

Purpose:
Minimally invasive transaxillary aortic valve replacement (TA-AVR) avoids sternotomy and may allow faster recovery, but comparative data are scarce. We compared early outcomes of TA-AVR with sternotomy AVR.
Methods:
In a single centre, 100 consecutive TA-AVR procedures (2025-2026) were compared with isolated, first-time sternotomy AVR (2016-2026). Patients were propensity score-matched 1:1 (optimal matching) on age, sex, body mass index, left ventricular function, urgency, endocarditis, renal function, diabetes, lung disease, extracardiac arteriopathy, mobility and EuroSCORE II, yielding 100 pairs. Outcomes included procedural times, hospital stay, postoperative complications and 30-day mortality.
Results:
After matching, groups were well balanced (all standardized mean differences <0.10; mean age 67.5 years, 66% male, EuroSCORE II 1.5%). TA-AVR required longer cardiopulmonary bypass (median 120 versus 89 minutes) and aortic cross-clamp times (78 versus 64 minutes; both p<0.001). Hospital stay was shorter after TA-AVR (median 4 [interquartile range 3-6] versus 6 [5-7] days; p<0.001). TA-AVR patients had less new-onset atrial fibrillation (21% versus 48%; p<0.001) and fewer red blood cell transfusions (5% versus 18%; p=0.007). Stroke, pacemaker implantation, pneumonia, delirium and intensive care readmission did not differ. Thirty-day mortality was 0% after TA-AVR versus 1% after sternotomy.
Conclusion:
In propensity-matched patients, minimally invasive TA-AVR was associated with a shorter hospital stay and less postoperative atrial fibrillation and transfusion than sternotomy AVR, with low early mortality. Longer procedural times are consistent with the learning curve of a newly introduced technique. These findings support TA-AVR as a safe alternative to sternotomy.

Keywords:
Aortic valve replacement, Minimally invasive, Propensity score