PROGRAMMA
WETENSCHAPPELIJKE VOORJAARSVERGADERING
NVT

29 mei 2026

Nederlandse Vereniging voor
Thoraxchirurgie

Locatie

MeetUp Jaarbeurs
Jaarbeursplein, zijkant Beatrixgebouw
Utrecht

Sponsors

KM Innovations b.v.

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Cardiac Care

Organisatie, accreditatie, ALV

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Inschrijving en accreditatie
Inschrijven voor deze wetenschappelijke voorjaarsvergadering kan via het aanmeldformulier op de website.

Deze wetenschappelijke voorjaarsvergadering wordt geaccrediteerd en gewaardeerd met 8 accreditatiepunten door de NVT. Leden van het verpleegkundig specialisten register en de NAPA ontvangen een certificaat, waarna zij zelf de behaalde accreditatiepunten kunnen bijschrijven in het persoonlijk GAIA dossier.

Algemene Ledenvergadering
Toegang tot de algemene ledenvergadering hebben alle gewone leden van de vereniging, alle bestuursleden, alle ereleden, alle senior leden alsmede de voorzitter en secretaris van de Juniorkamer.

Programma 29 mei 2026

8.30 – 9.00 uur	**Ontvangst en inschrijving**	Foyer
9.00 uur	**Opening door de voorzitter**	
9.15 – 10.30 uur	**Abstracts/pitch presentaties** **Sessievoorzitters**: S. Kaffka genaamd Dengler en R. Alipour Symakani	
9.15 uur	**P.S. van Sambeeck** PATIENT REPORTED QUALITY OF LIFE AFTER OPEN DESCENDING THORACIC AND THORACO-ABDOMINAL AORTIC REPAIR: A PROSPECTIVE COHORT STUDY	
9.30 uur	**B. Klaassen** OUTCOMES OF ISOLATED TRICUSPID VALVE SURGERY IN THE NETHERLANDS	
9.45 uur	**T.J. Mandigers** FIRST-IN-HUMAN STUDY USING NANOSECOND PULSED FIELD ABLATION FOR CONCOMITANT SURGICAL LEFT ATRIAL BOX ISOLATION WITH ELECTROANATOMICAL MAPPING FOLLOW-UP	
10.00 uur	**Themasessie** INNOVATIE ZONDER CONCESSIES: HOE JE SNELHEID EN EFFICIËNTIE VERHOOGT ZONDER KWALITEIT TE VERLIEZEN Door Paul Rulkens	
10.45 – 11.15 uur	**Koffiepauze**	Foyer
11.15 – 12.45 uur	**Abstracts sessie** **Sessievoorzitters**: G. Geuzebroek en T. Mandigers	
11.15 uur	**J. van Kimmenade** PREDICTIVE COMPUTATIONAL MODELING FOR OPTIMIZING THE SURGICAL OUTCOME OF VALVE-SPARING AORTIC ROOT REPLACEMENTS	
11.30 uur	**J. Horjus** CALCIUM CHANNEL BLOCKERS AND THORACIC AORTIC DISEASE RISK: GENETIC EVIDENCE FROM CACNA1C EXPRESSION	
11.45 uur	**I.G. Lenting** ARTIFICIAL INTELLIGENCE FOR AUTOMATED INTERPRETATION OF TRANSOESOPHAGEAL	

ECHOCARDIOGRAPHY TO SUPPORT PREOPERATIVE PLANNING IN MITRAL VALVE REPAIR

12.00 uur **S.E. van Putten**
FIVE-YEAR QUALITY OF LIFE OUTCOME FROM A RANDOMIZED CONTROLLED TRIAL COMPARING AORTIC VALVE REPLACEMENT THROUGH UPPER HEMISTERNOTOMY AND FULL MEDIAN STERNOTOMY

12.15 uur **Pitch sessie**

R. Sabaoğlu
THE HEARTMATE 3 INFLOW CANNULA IMPLANTATION ANGLE: A PROGNOSTIC FACTOR FOR NEUROLOGICAL DYSFUNCTION

M. Nader
OPTIMAL DURATION OF PREHABILITATION BEFORE LUNG CANCER SURGERY: A SYSTEMATIC REVIEW

V.Q. Sier
REINTERVENTION RATES AFTER SURGICAL AORTIC VALVE REPLACEMENT USING PERCEVAL SUTURELESS BIOPROSTHESIS

D.D. Koorndijk
ROBOTIC-ASSISTED THORACOSCOPIC SURGERY VERSUS VIDEO-ASSISTED THORACOSCOPIC SURGERY FOR NSCLC: SHORT-TERM OUTCOMES IN A DUTCH SINGLE-CENTRE RETROSPECTIVE COHORT DURING EARLY RATS EXPERIENCE

T.J.P. Heeringa
OUTCOMES IN PATIENTS UNDERGOING SURGICAL MYECTOMY WITH CONCOMITANT AORTIC VALVE

12.45 – 13.45 uur	**Lunchpauze**	Foyer
13.45 – 14.45 uur	**Algemene Ledenvergadering**	
13.45 – 14.45 uur	**Alternatief programma juniorkamer, NP'ers en PA's**	
14.45 – 15.15 uur	**Koffiepauze**	Foyer

15.15 – 16.45 uur **Abstract sessie**
Sessievoorzitters: E. Mahtab en B. Velders

15.15 uur **F. Akca**
CLINICAL OUTCOMES OF RADIAL ARTERY HARVESTING WITHOUT PREOPERATIVE FUNCTIONAL VASCULARIZATION ASSESSMENT IN CORONARY BYPASS SURGERY

15.30 uur **M.J. Kawczynski**
HEART RHYTHM TRANSITION DYNAMICS AFTER CARDIAC SURGERY: A MULTISTATE ANALYSIS USING CONTINUOUS IMPLANTABLE LOOP RECORDER MONITORING

15.45 uur **I. Cenik**
IMPROVING INVASIVE DIAGNOSTICS AND TREATMENT IN NSTE-ACS: EFFECTS OF WITHHOLDING P2Y12 INHIBITOR PRE-TREATMENT ON TIME TO CORONARY ARTERIAL BYPASS GRAFTING

16.00 uur **V.Q. Sier**
PCSK9 INHIBITION ATTENUATES VEIN GRAFT FAILURE INDEPENDENT OF LIPID LOWERING BY REDUCING INTRAPLAQUE HEMORRHAGE AND VCAM1-MEDIATED LEUKOCYTE INFILTRATION

16.15 uur **Pitch sessie**

R.S. Alipour Symakani
RIGHT VENTRICULAR DIASTOLIC FLOW MISALIGNMENT IN REPAIRED TETRALOGY OF FALLOT WITH CHRONIC PULMONARY REGURGITATION

J.R. Olsthoorn
UPPER-HEMI STERNOTOMY AORTIC ARCH SURGERY WITHOUT CIRCULATORY ARREST: A PROOF-OF-CONCEPT STUDY OF ZONE 1-2 REPAIR

J.R. Olsthoorn
TRANSAXILLARY HEART VALVE SURGERY: INITIAL SINGLE-CENTER EXPERIENCE

S.D.M. Khargi
MATERNAL, VALVULAR AND FOETAL OUTCOMES OF PREGNANCY FOLLOWING AORTIC VALVE REPLACEMENT

	J.F. de Kort OUTCOMES AFTER ENDOVASCULAR TREATMENT OF TYPE A AORTIC DISSECTIONS: AN ANALYSIS OF THE VASCULAR QUALITY INITIATIVE	
16.45 uur	**Borrel en uitreiking assistentenprijs** Ter beschikking gesteld door de Nederlandse Vereniging voor Thoraxchirurgie	Foyer
16.45 – 17.30 uur	**Tekenen voor accreditatie**	Inschrijfbalie

Abstract

09.15 uur

PATIENT REPORTED QUALITY OF LIFE AFTER OPEN DESCENDING THORACIC AND THORACO-ABDOMINAL AORTIC REPAIR: A PROSPECTIVE COHORT STUDY

P.S. van Sambeeck, MD[1], N.A. Hasami, MD[1], F.J.H. Nauta MD PhD[1], N. Saouti MD PhD[1], M.W.A. Verkroost MD[1], M. van den Boogaard PhD[2], R.H. Heijmen, MD PhD[1]
[1]*Department of Cardiothoracic Surgery, Radboud University Medical Center, Radboud Institute for Health Sciences, Nijmegen, The Netherlands;* [2]*Department of Intensive Care, Radboud University Medical Center, Radboud Institute for Health Sciences, Nijmegen, The Netherlands*

Objective
To longitudinally evaluate physical and mental health-related quality of life (HRQoL) following open descending thoracic and thoracoabdominal aortic aneurysm (DTA and TAAA) repair using validated patient-reported outcome measures (PROM).

Methods
In this prospective single-center cohort study, patients undergoing open DTA and TAAA repair between 2016 and 2023 were included. HRQoL was assessed preoperatively and at 3, 12, and 24 months postoperatively using the SF-12 (including PCS-12 [physical] and MCS-12 [mental] scores) and additional secondary patient reported outcome measures. Longitudinal changes were analyzed using linear mixed-effects models. Sensitivity analyses were performed using complete-case analyses and exploratory analyses assessed associations between baseline covariates and HRQoL trajectories.

Results
128 patients were included. PCS-12 scores declined significantly at 3 months and showed partial recovery over time but remained below baseline (overall $p < 0.01$). In contrast, MCS-12 scores showed a transient decline followed by recovery, exceeding baseline levels (overall $p = 0.01$). Secondary outcomes demonstrated increased fatigue and frailty at 3 months with subsequent improvement, while anxiety decreased over time and cognitive complaints increased but remained within normal ranges. No baseline variables were significantly associated with PCS-12 or MCS-12 scores. Complete-case analyses showed similar patterns with reduced statistical significance.

Conclusion
Open DTA and TAAA repair is associated with a sustained reduction in physical HRQoL and an improved mental recovery trajectory. Differences across PROMs reflect the multidimensional nature of recovery. These findings underscore the importance of integrating patient-reported outcomes into perioperative-care. Future research should focus on developing disease-specific PROMs to improve HRQoL assessment in this population.

Figure

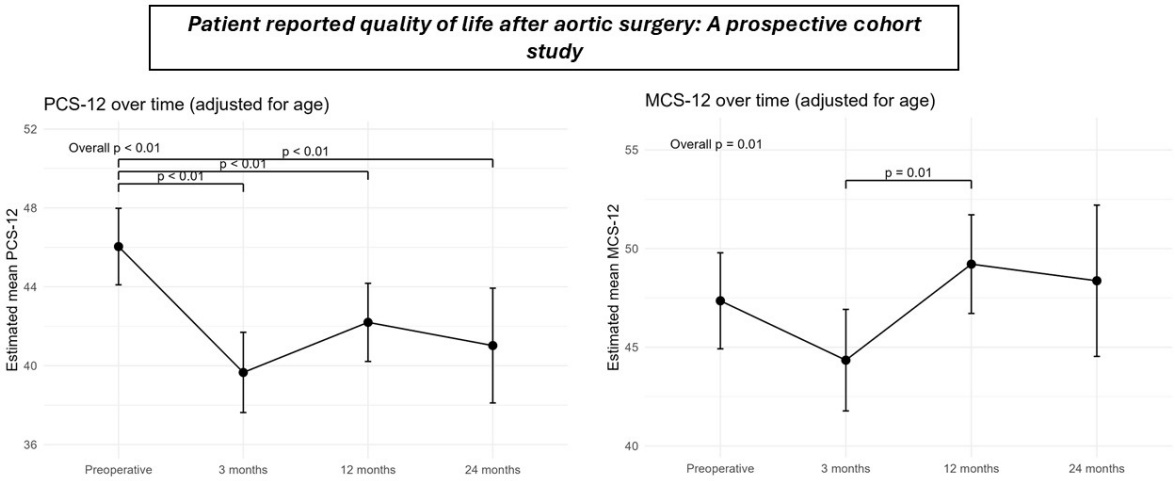


Figure 1 Estimated marginal means of Physical Component Score (PCS-12) (left) and Mental Component Score (MCS-12) (right) of the SF-12 questionnaire at preoperative assessment (N=90) and during postoperative follow-up at 3 (N=79), 12 (N=84), and 24 months (N=32), derived from linear mixed-effects models with a random intercept for participant and adjustment for operative age. Error bars represent 95% confidence intervals. A significant overall effect of time was observed for both PCS-12 ($p < 0.01$) and MCS-12 ($p = 0.01$). Significant pairwise comparisons are indicated in the figure.

Abstract

09.30 uur

OUTCOMES OF ISOLATED TRICUSPID VALVE SURGERY IN THE NETHERLANDS

B. Klaassen[1], A. Tjon Joek Tjien[1], S. Heuts[2,3], S. Bouwmeester[4], P.A.L. Tonino[4], E.S. Farag[5], R. Hermanides[6], M.A.H. van Leeuwen[6], S. Houterman[7], N. Verberkmoes[1], J.R. Olsthoorn[1,5]

[1] Department of Cardiothoracic Surgery, Catharina Hospital, Eindhoven, The Netherlands; [2] Department of Cardiothoracic Surgery, Maastricht University Medical Center, Maastricht, The Netherlands; [3] Cardiovascular Research Institute Maastricht (CARIM), Maastricht University, Maastricht, The Netherlands; [4] Department of Cardiology, Catharina Hospital, Eindhoven, The Netherlands; [5] Department of Cardiothoracic Surgery, Isala Heart Centre, Zwolle, The Netherlands; [6] Department of Cardiology, Isala Heart Centre, Zwolle, The Netherlands; [7] Netherlands Heart Registration, Utrecht, The Netherlands

Objectives

Isolated tricuspid valve surgery (TVS) has historically been associated with high mortality, contributing to its underutilization. Contemporary data suggest improved outcomes, but nationwide evidence remains limited, particularly for both primary and reoperative cases. This study evaluates short- and mid-term outcomes, including mortality and survival, following isolated TVS in the Netherlands.

Methods

A retrospective cohort study was performed using the Netherlands Heart Registration, including adult patients undergoing isolated tricuspid valve surgery between 2007 and 2023 across all Dutch cardiothoracic centres. Patients undergoing concomitant left-sided valve surgery were excluded. Both primary procedures and reoperations were included. Primary outcomes were 30- and 120-day mortality. Secondary outcomes included overall survival and postoperative complications. Subgroup analyses were performed for patients with prior cardiac surgery, endocarditis and concomitant coronary artery bypass grafting.

Results

A total of 944 patients underwent isolated tricuspid valve surgery, including 599 primary procedures and 345 reoperations. Mean age was 61.1 ± 14.9 years in primary cases and 57.9 ± 15.3 years in reoperations. Male sex was present in 50.6% of primary cases and 50.7% of reoperations. Active endocarditis was present in 8.5% of primary cases and 4.3% of reoperations. Median EuroSCORE II was 2.2% [1.25–4.23] and 5.6% [3.4–13.0] respectively.

Thirty-day mortality was 4.0% in primary TVS and 4.3% in reoperative TVS. In primary cases, 30-day mortality decreased to 2.8% after exclusion of patients with endocarditis and concomitant CABG. At 120 days, mortality was 7.8% for primary and 8.1% for reoperative cases, respectively.

Five-year survival was 72.0% (95% CI 69.2–74.8) in primary TVS and 67.8% (95% CI 64.3–70.3) in reoperations.

Postoperative complications included new-onset arrhythmia (21.7% vs 11.6%), re-exploration for bleeding (5.7% vs 7.5%), prolonged ventilation >24 hours (5.7% vs 9.6%) and ICU readmission (6.1% in reoperations). Median length of hospital stay was 13 days [6–15] for primary cases and 11 days [7–19] for reoperations.

Age, diabetes, and chronic lung disease were independently associated with mid-term mortality.

Conclusion

Isolated tricuspid valve surgery in the Netherlands is associated with acceptable early mortality and mid-term survival in both primary and reoperative settings. Outcomes are comparable between primary and reoperative procedures. These nationwide results provide a contemporary benchmark for clinical decision-making and evaluation of emerging transcatheter therapies.

Abstract

09.45 uur

FIRST-IN-HUMAN STUDY USING NANOSECOND PULSED FIELD ABLATION FOR CONCOMITANT SURGICAL LEFT ATRIAL BOX ISOLATION WITH ELECTROANATOMICAL MAPPING FOLLOW-UP

Tim J. Mandigers[1], Bart Maesen[2], L. Aerts[2], Antonius H.G. Driessen[3], Bart P. van Putte[1,3]
[1]*Cardiothoracic Surgery Department, St Antonius Hospital, Nieuwegein, The Netherlands*
[2]*Cardiothoracic Surgery Department, Maastricht UMC+, Maastricht, The Netherlands*
[3]*Cardiothoracic Surgery Department, Amsterdam UMC, locatie AMC, Amsterdam, The Netherlands*

Objectives
Nanosecond pulsed field ablation (nsPFA) is a novel, non-thermal, cell-specific energy modality that uses electrical pulses to create nanopores in lipid membranes, thereby initiating regulated cell death. The aim of this study is to evaluate the initial safety and effectiveness of the nsPFA clamp for the concomitant treatment of atrial fibrillation.

Methods
This is a prospective, multicenter, single-arm, non-randomized, feasibility study in adult patients undergoing open cardiac surgery. The nsPFA clamp is used to create a concomitant epicardial left atrial posterior box lesion. The primary safety endpoint is the 30-day rate of acute major adverse events. Primary effectiveness is evaluated by intraoperative testing of isolation of the pulmonary veins (PV) and box. Secondarily, 30-day rates of adverse events and PV and box isolation at 2 to 4-months follow-up using electroanatomical mapping are evaluated.

Results
Thirty patients among three centers were included (80% male, 71±6 years). Twenty-four (80%) underwent electroanatomical mapping, evaluating two nsPFA doses (low, n=7 and high, n=17). Mean ablation time was 50±6 seconds with 13±5 applications. No ablation related death or stroke nor esophageal or phrenic nerve damage occurred. In the high dose group, primary effectiveness was 100% (17/17), secondary effectiveness was 94% (63/67) per PV, 71% (12/17) had both PV and posterior wall isolation, 83% (10/12) had a closed box, while 82% had sinus rhythm (14/17).

Conclusion
nsPFA can safely and effectively create durable lesions at the higher dose. If compared with other ablation technologies, nsPFA may offer increased safety and faster ablation times potentially reducing cardiopulmonary bypass times.

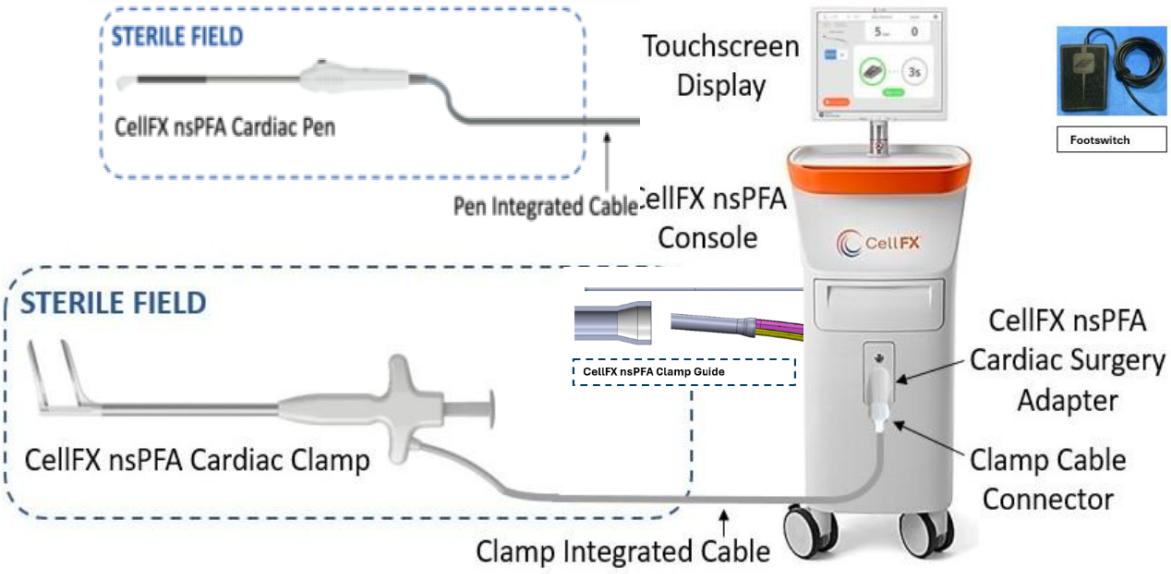


Figure 1. CellFX nsPFA Cardiac Surgery System Components

Abstract

11.15 uur

PREDICTIVE COMPUTATIONAL MODELING FOR OPTIMIZING THE SURGICAL OUTCOME OF VALVE-SPARING AORTIC ROOT REPLACEMENTS

Jur van Kimmenade[1], Justina Ghebryal[1], Morten Smerup[2], Peter Verbrugghe[3], Sandra Loerakker[1*], Jesper Hjortnaes[4*]

[1]*Department of Biomedical Engineering, Eindhoven University of Technology, The Netherlands*
[2]*Department of Paediatric Cardiac Surgery, Copenhagen University Hospital, Denmark*
[3]*Department of Cardiovascular Sciences, KU Leuven, Belgium*
[4]*Department of Cardiothoracic Surgery, Leiden University Medical Center, The Netherlands*
** Equal contribution*

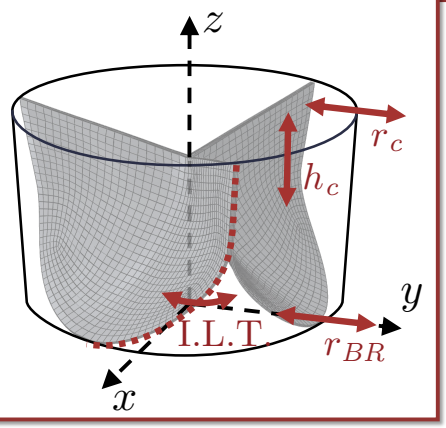
Objectives
Aortic root dilatation disturbs valvular geometry, potentially leading to aortic insufficiency. Valve-sparing aortic root replacement (VSRR) restores valve function while preserving native leaflets. Optimal valve function depends on geometric adjustments performed during surgery. Given the challenge of predicting (long-term) effects of these adjustments, this study aims to improve understanding of how geometric features influence valve function.

Methods
A parameterized finite element model of a functional aortic valve was developed. Commissural radius and virtual basal ring radius were varied under diastolic pressure to predict the effects of root dilatation. The resulting incompetent geometries were used to simulate repair strategies, by varying graft size, commissural height, and interleaflet triangle size (Figure). Functional outcomes were coaptation surface area (cA), effective height (eH), and regurgitant orifice area (roA).

Results
Commissural dilatation posed the greatest risk for aortic insufficiency: it increased eH and roA while reducing cA, whereas basal ring dilatation decreased eH and cA with only modest roA increase. In VSRR simulations, graft size was most dominant in determining post-operative function: smaller grafts increased cA and reduced eH and roA but caused prolapse, while larger grafts increased eH and roA and reduced cA. Increasing commissural height or reducing inter-leaflet triangle size improved both eH and cA, whereas opposite changes reduced them.

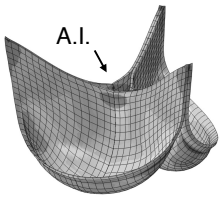
Conclusion
Computational models can be leveraged to predict valve performance in context of valve sparing root repair. This modeling framework provides a foundation for future VSRR simulations and will be extended with a growth and remodeling framework to improve understanding of long-term tissue adaptation.

computational model



root dilatation

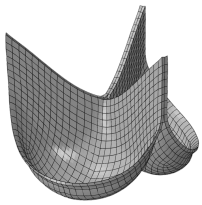
Increasing r_c en r_{BR}



Dilatation involving the **commissures** caused the greatest increase in **regurgitant orifice area**.

graft reimplantation

Varying graft size ($r_c = r_{BR}$), h_c and I.L.T.



Graft size had the most dominant effect on post-operative functionality.

Abstract

11.30 uur

CALCIUM CHANNEL BLOCKERS AND THORACIC AORTIC DISEASE RISK: GENETIC EVIDENCE FROM CACNA1C EXPRESSION

Julia Horjus[1,2], Sean J. Jurgens[1], Connie R. Bezzina[1], Nimrat Grewal[2]

[1]Department of Experimental Cardiology, Amsterdam University Medical Centre, Amsterdam, The Netherlands; [2]Department of Cardiothoracic Surgery, Amsterdam University Medical Centre, Amsterdam, The Netherlands

Objectives

Calcium channel blockers (CCBs) are commonly used for blood pressure control in patients at risk for thoracic aortic aneurysm and dissection (TAA/D). However, observational and experimental data have raised concerns about a potential association between CCB use and increased TAA/D risk.*CACNA1C*encodes the α1C subunit of the L-type calcium channel targeted by CCBs, linking CCB therapy to this pathway.Whether genetically determined variation in*CACNA1C*expression influences TAA/D risk remains unknown.

Methods

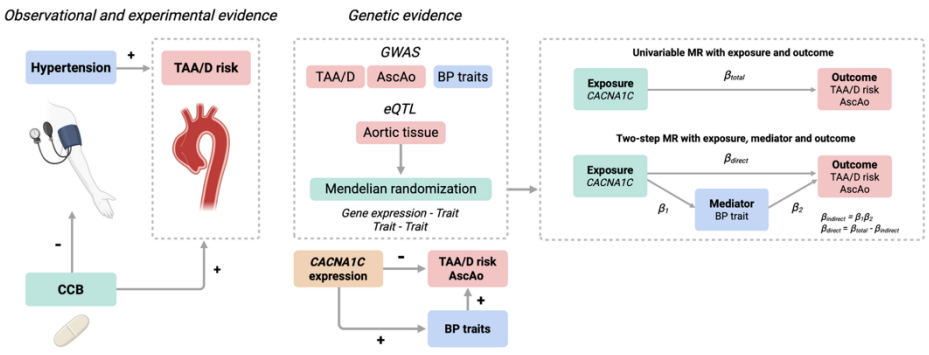
We performed two-sample Mendelian randomization (MR) using*cis*-eQTLs for*CACNA1C*gene expression in aortic tissue to assess associations with TAA/D risk. Outcomes included TAA/D, ascending aortic diameter, and blood pressure traits. Two-step MR was used to assess potential mediation by blood pressure.

Results

Higher genetically predicted*CACNA1C*expression was associated with lower TAA/D risk (β = −0.18, P = 0.004) and smaller ascending aortic diameter (β = −0.08, P = 0.011). In contrast,*CACNA1C*expression was associated with higher systolic and diastolic blood pressure. While higher blood pressure was associated with increased TAA/D risk, adjustment for blood pressure did not attenuate the protective effect of*CACNA1C*expression on aortic outcomes.

Conclusion

Higher genetically predicted*CACNA1C*expression was associated with a lower risk of TAA/D and smaller ascending aortic diameter, independent of blood pressure. As CCBs target L-type calcium channels, our genetic findings are directionally consistent with prior observational studies linking CCB use to increased TAA/D risk. These results support the need for careful evaluation of CCB therapy in patients at risk for thoracic aortic disease.



Abstract

11.45 uur

ARTIFICIAL INTELLIGENCE FOR AUTOMATED INTERPRETATION OF TRANSOESOPHAGEAL ECHOCARDIOGRAPHY TO SUPPORT PREOPERATIVE PLANNING IN MITRAL VALVE REPAIR

Igor G. Lenting[1], Loano J. C. H. Lekranty[1], Romée van Valkenburg[1], Emma H. M. Torn[2], Marco Guglielmo[3,4], Mostafa M. Mokhles[1], Robin H. Heijmen[5], Ruisheng Su[6], Amir H. Sadeghi[1,5]

[1] Department of Cardiothoracic Surgery, University Medical Center Utrecht, Utrecht, The Netherlands
[2] Department of Anesthesiology, University Medical Center Utrecht, Utrecht, The Netherlands.
[3] Department of Cardiology, University Medical Center Utrecht, Utrecht, The Netherlands
[4]Department of Radiology, University Medical Center Utrecht, Utrecht, The Netherlands.
[5]Department of Cardiothoracic Surgery, Radboud UMC, Nijmegen, The Netherlands
[6]Department of Biomedical Engineering, Eindhoven University of Technology, Eindhoven, The Netherlands

Objectives
Mitral valve repair relies on preoperative planning using transesophageal echocardiography (TEE), whose interpretation is experience-dependent and subject to interobserver variability. Identification of standard mid-esophageal views and leaflet scallops is critical for consistent anatomical orientation and pathology localization. Anatomical segmentation enables quantitative assessment, including pathology characterization, systolic anterior motion risk estimation, and potentially annuloplasty ring sizing prediction. This study evaluates feasibility of artificial intelligence (AI)-driven classification of standard views and scallops combined with anatomical segmentation to standardize interpretation and support decision-making.

Methods
Retrospective 2D perioperative TEE recordings from 127 consecutive patients undergoing mitral valve repair (UMCU, 2019–2022) were screened; 7 were excluded due to insufficient image quality. The final cohort comprised 120 patients for classification and a subset of 30 patients for segmentation (91.6% primary mitral regurgitation (MR), 8.4% secondary MR). Deep learning models were developed for (1) classification of standard mid-esophageal views and scallops (ResNet) and (2) segmentation of anatomical structures (U-Net). Performance was assessed using accuracy and F1-score (classification), and Dice coefficient and Hausdorff distance (HD) (segmentation).

Results
Classification achieved 100% accuracy for standard views and 80% (macro F1: 0.65) for scallop identification. Segmentation yielded Dice scores of 0.77 for the mitral valve (HD: 31.0 mm) and 0.49 for the left ventricle (HD: 72.3 mm). Contextual structures achieved a Dice score of 0.59 (HD: 41.7 mm).

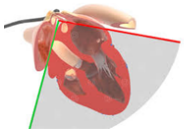
Conclusion
AI-based interpretation of 2D TEE enables consistent and reproducible recognition of views and scallops, providing a foundation for preoperative planning. Further dataset expansion and multicenter validation are required to establish generalizability and clinical applicability.

Artificial Intelligence for Automated Interpretation of Transesophageal Echocardiography to Support Preoperative Planning in Mitral Valve Repair

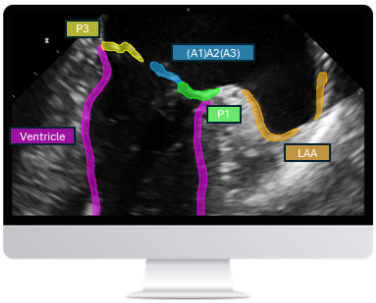
120 Consecutive patients included (2019 – 2022 UMCU)

91.6% primary MR and 8.4% secondary MR

TEE



Classification of TEE view and mitral scallops (ResNet) and segmentation (U-Net) for Standarized interpretation with AI



Outcomes

Classification

120 patients included	Accuracy	Macro F1 score
Standard views	1.00	1.00
Mitral scallops	0.80	0.65

Segmentation

30 patients included	Dice score	Hausdorf distance (mm)
Mitral scallops	0.77	31
Left ventricle	0.49	72.3
Contextual structures	0.59	41.7

Towards Objective & Consistent Surgical Planning

Standardized interpretation

Enables quantitative decision support with segmentations

Abstract

12.00 uur

FIVE-YEAR QUALITY OF LIFE OUTCOME FROM A RANDOMIZED CONTROLLED TRIAL COMPARING AORTIC VALVE REPLACEMENT THROUGH UPPER HEMISTERNOTOMY AND FULL MEDIAN STERNOTOMY

Simon E. van Putten[1,2], Idserd D.G. Klop[1], Pythia T. Nieuwkerk[3,4,5], Badr Friguech[1], Geoffrey T.L. Kloppenburg[1], Robert J.M. Klautz[2,6], Bart P. van Putte[1,2], Patrick Klein[1,2]

[1]Department of Cardiothoracic Surgery, St. Antonius Hospital, Nieuwegein; [2]Department of Cardiothoracic Surgery, Amsterdam University Medical Centre, Amsterdam; [3]Department of Medical Psychology, Amsterdam University Medical Centre, Amsterdam; [4]Amsterdam Public Health, Amsterdam University Medical Centre, Amsterdam; [5]Amsterdam Institute for Immunology and Infectious Diseases, Amsterdam; [6]Department of Cardiothoracic Surgery, Leiden University Medical Centre, Leiden

Objectives
The impact of minimally invasive surgical aortic valve replacement (SAVR) on long-term quality of life (QoL) is uncertain. This randomized controlled trial compared QoL 5 years after SAVR through upper hemisternotomy (UHS) or full median sternotomy.

Methods
Patients undergoing SAVR were randomized to UHS or full median sternotomy. The primary outcome was postoperative cardiac-specific QoL during 5 years, assessed by the Kansas City Cardiomyopathy Questionnaire physical limitations domain. Secondary outcomes include survival, other QoL domains, and factors associated with declined QoL between 1 and 5 years.

Results
Surgical aortic valve replacement via UHS resulted in better QoL as indicated by more favourable physical limitation and total symptoms scores (estimated mean difference [95% confidence interval] −1.89 [−2.93 to −0.85; P-value ≤.001] and - 2.96 [−4.71 to −1.22; P-value = .016], respectively). Quality of life improvement persisted for 5 years, despite a decline after 1 year postoperative. Age and valve size smaller than or equal to 21 were independent predictors of decline in physical functioning, while full median sternotomy independently predicted declined total symptoms score. Five-year survival was 91.9% and similar between approaches (P-value = .417).

Conclusion
Minimally invasive SAVR was associated with a modest but statistically significant improvement in cardiac-specific QoL over 5 years compared to median sternotomy, driven by earlier recovery, with comparable outcomes at 5 years. Full median sternotomy independently predicted decline in QoL demonstrated by decreased total symptom scores.

Pitch

12.15 – 12.45 uur

THE HEARTMATE 3 INFLOW CANNULA IMPLANTATION ANGLE: A PROGNOSTIC FACTOR FOR NEUROLOGICAL DYSFUNCTION

Rengin Sabaoğlu[1]; Sander Ariëns[1]; Nazara Sharifi[1]; Faiz Z Ramjankhan[1]; M. Louis Handoko[2]; Eric E.C. de Waal MD[3]; Monica Gianoli[1]; Mariusz K. Szymanski[2]; Massimo Mariani[1]; Birgitta K. Velthuis[4]; Mostafa M. Mokhles[1]

[1]Department of Cardiothoracic Surgery, Transplantation Center University Medical Center Utrecht, Utrecht, The Netherlands; [2]Department of Cardiology, Transplantation Center University Medical Center Utrecht, Utrecht, The Netherlands; [3]Department of Anesthesiology, Transplantation Center University Medical Center Utrecht, Utrecht, The Netherlands; [4]Department of Radiology, University Medical Center Utrecht, Utrecht, The Netherlands

Objectives
Left ventricular assist device (LVAD) implantation has become an established option in advanced heart failure treatment. However, hemocompatibility-related complications remain a major source of morbidity and mortality. This study's primary objective was to determine whether the implantation angle of the inflow cannula (IC) was associated with neurological dysfunction (ND) in HeartMate 3 (HM3) patients.

Methods
This single-center, retrospective study included primary HM3 patients. The IC angle was measured on computed tomography (CT). Patients without contrast-enhanced CT-scan after LVAD implantation were excluded. Fine-Gray competing risk modelling was conducted to assess the association between the IC angle and ND.

Results
In total 163 patients (age 56.2 (IQR 47.1-62.7) years, 67.5% male) were included. The median follow-up duration was 2.9 (IQR 1.1-4.4) years. ND occurred in 26 (16.0%) patients after a median time of 333 (IQR 22-657) days postoperatively. An IC angle deviation greater than 10 degrees from the mitral valve towards the interventricular septum or the lateral wall of the left ventricle was significantly associated with an increased risk of ND (SHR 3.33 (95% CI 1.33–8.30) (P= 0.010)).

Conclusion
Malposition of the HM3 IC on CT-imaging is a prognostic factor for postoperative ND. These insights may help identify patients at higher risk for ND after implantation, prompting closer neurological monitoring.

Pitch

12.15 – 12.45 uur

OPTIMAL DURATION OF PREHABILITATION BEFORE LUNG CANCER SURGERY: A SYSTEMATIC REVIEW

Musa Nader[a*], Hasina Pashtoun[b], Miriam Scheurwater[c], Inge Jacobs[d], Ben van de Borne[b], Christi Steendam[b], Thomas van Brakel[a]

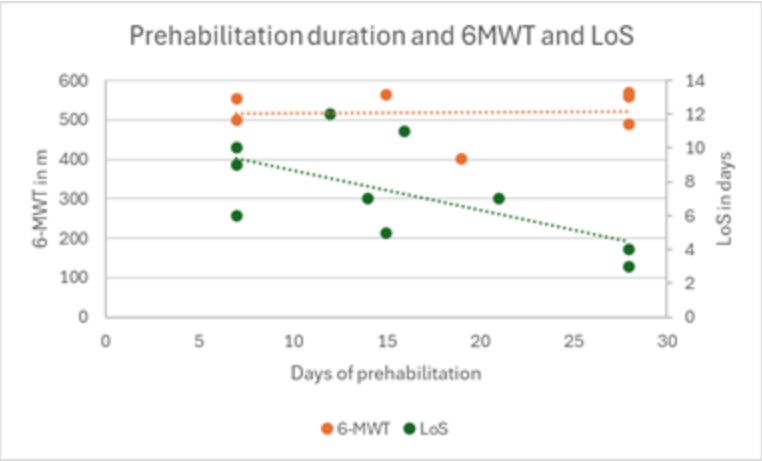
[a]*Department of cardiothoracic surgery, Catharina hospital, Eindhoven, Netherlands;*
[b]*Department of pulmonology, Catharina hospital, Eindhoven, Netherlands;*
[c]*Department of Cardiology, Catharina hospital, Eindhoven, Netherlands;*
[c]*Department of physical therapy, Catharina hospital, Eindhoven, Netherlands;*

Objectives
In lung cancer surgery, timing of resection must balance oncologic urgency against the need to optimise functional capacity and reduce operative risk. Functional capacity is an independent predictor of postoperative morbidity after lung cancer surgery. Prehabilitation programs aim to improve functional capacity through exercise, respiratory muscle training, and nutritional optimization aiming to reduce postoperative complications and hospital length of stay (LoS). However, the window for prehabilitation is limited by the time-to-surgery interval, as delays in treatment can lead to tumor progression and reduced chances of curative surgery. This systematic review studies the effects of prehabilitation, focusing on the duration, and assesses its impact on functional and postoperative outcomes.

Methods
A systematic literature search of the PubMed, Cochrane and Embase database was performed to include randomized controlled trials and cohort studies, in which patients underwent lung surgery for NSCLC and received multimodal prehabilitation. After the selection and inclusion of the relevant articles independently by two review authors, the data was extracted and analyzed. We analyzed the prehabilitation duration and LoS and/or the 6-minute walk test (6-MWT).

Results
In total 14 studies were included, which contained 579 patients undergoing various forms of prehabilitation prior to lung cancer surgery, duration ranging from 7 to 28 days. The feasibility measured in percentage of patients finishing the program differed between 83-100%. All studies reporting 6-MWT showed postoperative gains in functional capacity but no association was found between the 6MWT outcome and the duration of prehabilitation. In contrast, several studies suggested that longer prehabilitation duration (3-4 weeks versus 6-10 days) was associated with shorter LoS.

Conclusion
Multimodal prehabilitation prior to lung resection for NSCLC is feasible and associated with improvements in functional capacity and postoperative outcomes. Although all included studies demonstrated gains in 6MWT performance following prehabilitation, no clear relationship was observed between program duration and the magnitude of functional improvement. In contrast, a trend toward shorter hospital length of stay was noted with longer prehabilitation duration.


Prehabilitation duration and 6MWT and LoS
6-MWT in m
LoS in days
Days of prehabilitation
6-MWT
LoS

Pitch

12.15 – 12.45 uur

REINTERVENTION RATES AFTER SURGICAL AORTIC VALVE REPLACEMENT USING PERCEVAL SUTURELESS BIOPROSTHESIS

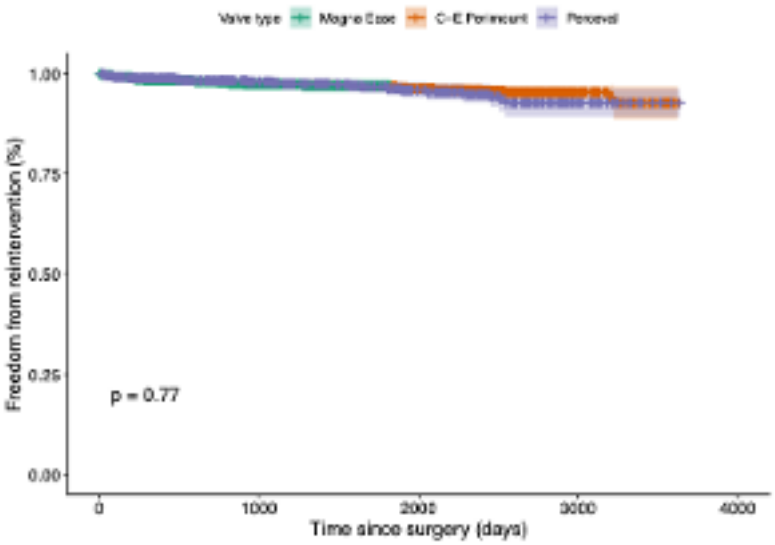
Ka Yan Lam[1], Vincent Q. Sier[1], Daniela N. Schulz[2], M. Erwin Tan[1], Mohamed A. Soliman-Hamad[1]
[1]*Department of Cardiothoracic Surgery, Catharina Hospital, Eindhoven*
[2]*Catharina Heart Centre, Catharina Hospital, Eindhoven*

Objectives
Surgical aortic valve replacement (SAVR) remains the benchmark for durable treatment of aortic valve disease, supported by decades of follow-up demonstrating sustained freedom from reintervention. We retrospectively evaluated mid- to long-term reintervention rates of the sutureless Perceval valve relative to well-established surgical bioprostheses.

Methods
All consecutive patients undergoing SAVR with a biological prosthesis between June 2015 and December 2024 at a single-center were retrospectively analyzed. Freedom from reintervention was assessed using Kaplan-Meier analyses and multivariable Cox regression adjusted for clinical and operative covariates.

Results
A total of 2,521 patients were included (Perimount n=883, Magna Ease (ME) n=883, Perceval n=755), of whom 59% underwent concomitant procedures. Perceval implantation was associated with shorter aortic cross-clamp and extracorporeal circulation times. In-hospital mortality ranged from 1.6% in the Perceval group to 4.3% in the ME group, and 30-day mortality from 2.4% to 4.6% across valve types. During follow-up (median: 3.4y Perceval to 7.0y Perimount), reintervention was encountered in 64 patients (3.4% perimount, 1.8% ME, 2.4% Perceval). Kaplan–Meier analyses demonstrated no difference in freedom from reintervention between valve types (log-rank p=0.77). In multivariable Cox analyses, valve type was not independently associated with reintervention, with hazard ratios of 0.80 (95% CI 0.43–1.51; p=0.498) for Perimount and 1.53 (95% CI 0.79–2.97; p=0.212) for Perceval compared with ME.

Conclusion
Long-term freedom from reintervention following SAVR using the Perceval sutureless valve is comparable to established sutured surgical bioprostheses in routine clinical practice. Longer follow-up is needed to confirm durability of the Perceval bioprosthesis.


Valve type
Magna Ease
C-E Perimount
Perceval
1.00
0.75
0.50
0.25
0.00
Freedom from reintervention (%)
p = 0.77
0
1000
2000
3000
4000
Time since surgery (days)

Pitch

12.15 – 12.45 uur

ROBOTIC-ASSISTED THORACOSCOPIC SURGERY VERSUS VIDEO-ASSISTED THORACOSCOPIC SURGERY FOR NSCLC: SHORT-TERM OUTCOMES IN A DUTCH SINGLE-CENTRE RETROSPECTIVE COHORT DURING EARLY RATS EXPERIENCE

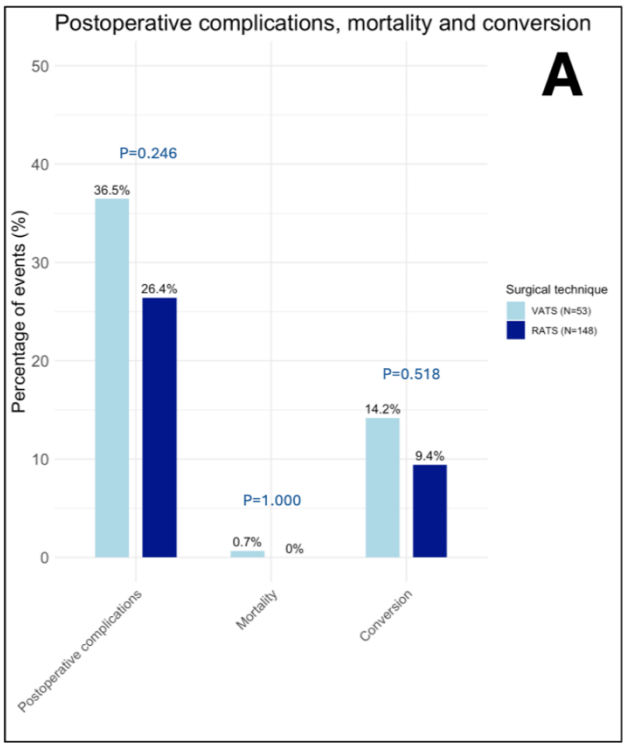
Dolores D. Koorndijk, Jolanda Kluin, Kevin M. Veen, Sabrina Siregar
Erasmus MC, Rotterdam

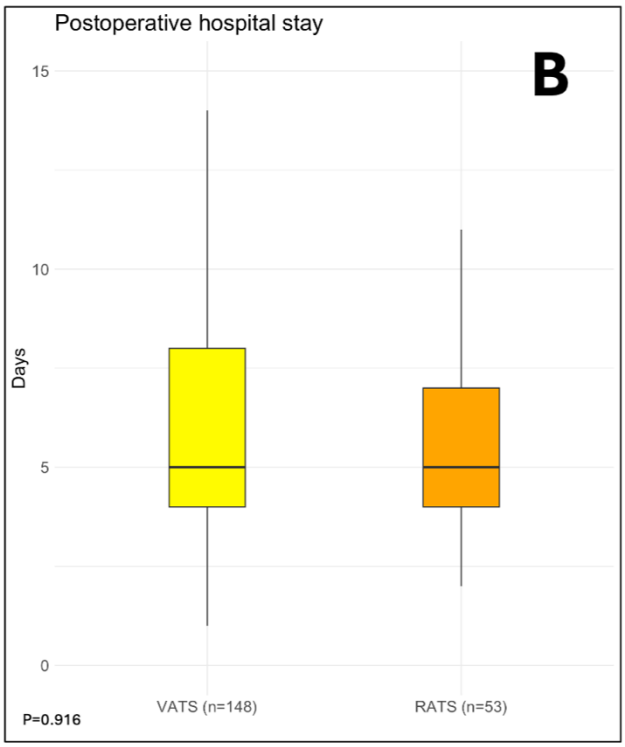
Objectives
This study aims to compare short-term outcomes between robotic-assisted thoracoscopic surgery (RATS) and video-assisted thoracoscopic surgery (VATS) in adult patients with non-small-cell lung cancer (NSCLC) undergoing anatomical lung resection in a Dutch single-centre retrospective cohort during early RATS experience.

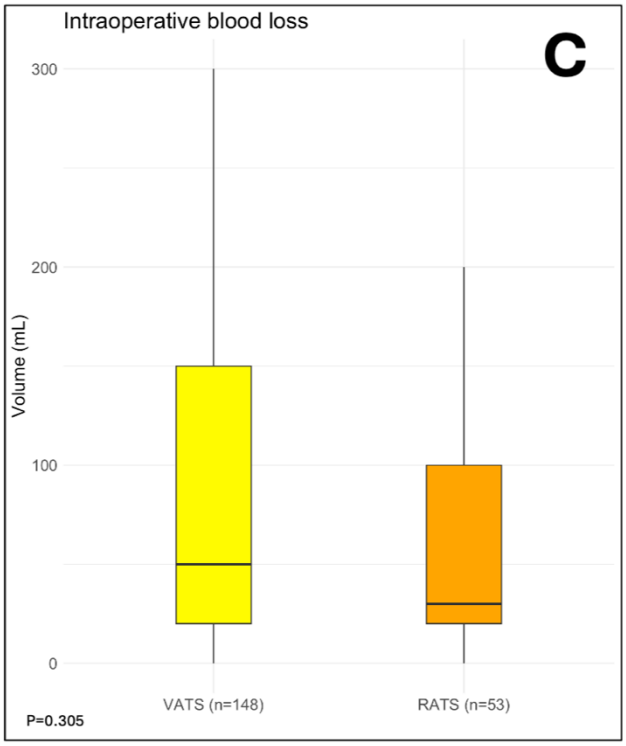
Methods
Patients operated between January 1, 2023 and December 31, 2024 at Erasmus Medical Centre were included. Primary outcomes included mortality and postoperative complications. Secondary outcomes were conversion to thoracotomy, number of dissected lymph nodes, resection completeness (R0), postoperative hospital stay (PHS), intraoperative blood loss and transfusion rate. Multivariable and logistic regression adjusted for confounders. Poisson regression performed lymph node analysis. Sensitivity analysis assessed learning curve impact by excluding the first 25 RATS-cases. The RATS-group was stratified by first and second year.

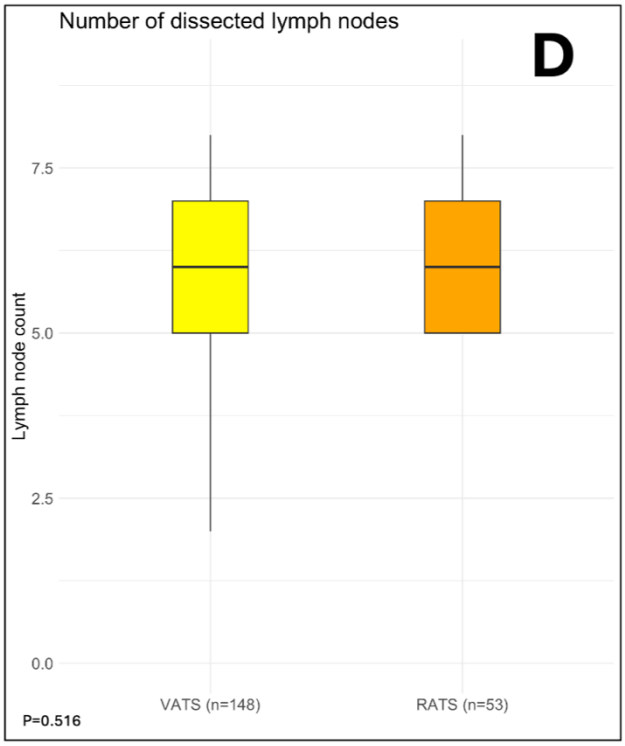
Results
Overall, 201 patients underwent VATS (n=148) or RATS (n=53). Baseline characteristics were comparable in both groups. No differences were observed in mortality (VATS n=1 vs RATS n=0, P=1.000), PHS (VATS median 5.00 days [IQR, 4.00, 8.00] vs RATS 5.00 [4.00, 7.00], P=0.916), dissected lymph nodes (6.00, [5.00, 7.00] in both groups, P=0.516) and R0 (VATS 93.9% vs RATS 96.2%, P=0.778). Trends favouring RATS were observed in postoperative complications (VATS n=54 (36.5%) vs RATS n=14 (26.4%), P=0.246), conversion (VATS n=21 (14.2%) vs RATS n=5 (9.4%), P=0.518), blood loss (VATS 50.00 mL [20.00, 150.00] vs RATS 30.00 [20.00, 100.00], P=0.305) and transfusion rate (VATS n=14 (9.5%) vs RATS n=2 (3.8%), P=0.309).

Conclusion
RATS showed comparable short-term outcomes to VATS during learning phase. While not significant in this small cohort, trends favoured RATS perioperatively.


Postoperative complications, mortality and conversion
A
Percentage of events (%)
50
40
30
20
10
0
P=0.246
36.5%
26.4%
P=1.000
0.7%
0%
P=0.518
14.2%
9.4%
Surgical technique
VATS (N=53)
RATS (N=148)
Postoperative complications
Mortality
Conversion


Postoperative hospital stay
B
Days
15
10
5
0
VATS (n=148)
RATS (n=53)
P=0.916


Intraoperative blood loss
C
Volume (mL)
300
200
100
0
VATS (n=148)
RATS (n=53)
P=0.305


Number of dissected lymph nodes
D
Lymph node count
7.5
5.0
2.5
0.0
VATS (n=148)
RATS (n=53)
P=0.516

Pitch

12.15 – 12.45 uur

OUTCOMES IN PATIENTS UNDERGOING SURGICAL MYECTOMY WITH CONCOMITANT AORTIC VALVE REPLACEMENT: DATA OF THE NETHERLANDS HEART REGISTRATION

Tijn J.P. Heeringa [1, 2], Marco Guglielmo[1], Giulia de Zan[1], Ilonca Vaartjes[1], Pim van der Harst [1, 3], Romy M. J. J. Hegeman[2], Maaike M. Roefs[4], Maarten J. Cramer[1], Peter Zuithoff[1], Patrick Klein[2], Niels P. van der Kaaij[5], Mostafa M. Mokhles[1], namens de Cardiothoracic Surgery Registration Committee of the Netherlands Heart Registration[4]

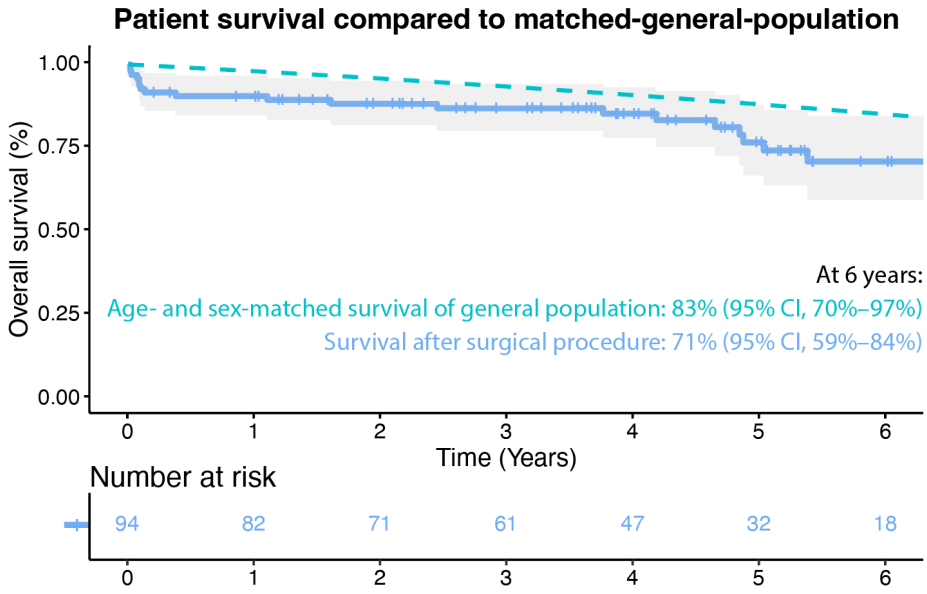
[1]UMC Utrecht, Utrecht; [2]Amsterdam UMC, Amsterdam; [3]UMC Groningen, Groningen; [4]Nederlandse Hartregistratie, Utrecht; [5]Erasmus MC, Rotterdam

Objectives
The objectives of this multicentre Dutch study were to evaluate outcomes of surgical myectomy with concomitant aortic valve replacement (AVR) in patients with hypertrophic cardiomyopathy (HCM) and aortic valve stenosis and to compare patient survival against age-sex-matched survival of the general Dutch population.

Methods
All HCM patients who underwent surgical myectomy with concomitant AVR between 2012 and 2020 across 12 Dutch hospitals were analysed using data from the Netherlands Heart Registration. Operative details, pre-, and in-hospital echocardiographic data, and 30-day complication rates are described. Survival is assessed using Kaplan-Meier estimates and compared to the general Dutch population.

Results
This cohort (n=94) included 41 males (44%) and 53 females (56%) with a median age of 72 (interquartile range [IQR]: 67–76) years at the time of the intervention. Additional procedures to AVR were performed concomitantly in 54% of patients. Mean resting left ventricular outflow tract (LVOT) gradient improved from 73±27mmHg to 12±12 postoperatively. At baseline, septal thickness and indexed AV-area were 21 [19-24] mm, and 0.48±0.14cm2/m2, respectively. Permanent pacemaker implantation and ventricular septal defect rates were 13% and 1%, respectively. Unadjusted survival estimated at 1, and 6 years after the surgical procedure were 90% (95% CI, 85–97), and 71% (95% CI, 59–84). Age-and sex-matched survival in the general population was 83% (95% CI, 70%–97%) at 6-years (figure1).

Conclusion
Surgical myectomy with concomitant AVR effectively relieved LVOT-obstruction; however, permanent pacemaker implantation was a relatively common complication. At longer-term follow-up, these patients showed lower survival compared to the age-and sex-matched general Dutch population.


Patient survival compared to matched-general-population
Overall survival (%)
1.00
0.75
0.50
0.25
0.00
At 6 years:
Age- and sex-matched survival of general population: 83% (95% CI, 70%–97%)
Survival after surgical procedure: 71% (95% CI, 59%–84%)
0
1
2
3
4
5
6
Time (Years)
Number at risk
94
82
71
61
47
32
18

Abstract

15.15 uur

CLINICAL OUTCOMES OF RADIAL ARTERY HARVESTING WITHOUT PREOPERATIVE FUNCTIONAL VASCULARIZATION ASSESSMENT IN CORONARY BYPASS SURGERY

De Qing F.N. Görtzen[1]MSc., Anne Els Burghard[1]MSc., Ron G.H. Speekenbrink[2]MD PhD., Joost F.J. ter Woorst[1]MD PhD., Ferdi Akca[1]MD PhD.

[1]Department of Cardiothoracic Surgery, Catharina Hospital Eindhoven, Eindhoven, the Netherlands
[2]Department of Cardiothoracic Surgery,Thorax Centrum Twente, the Netherlands

Objectives
The radial artery is frequently used in coronary bypass surgery. However, routine preoperative functional vascular assessment remains widely practiced despite limited evidence supporting its reliability. This study aims to evaluate the safety of omitting preoperative functional assessment before radial artery harvest and the outcomes of endoscopic and open harvest techniques.

Methods
This is a single-center retrospective cohort study including all patients undergoing coronary revascularization with a radial artery graft between June 2023 and February 2026. No patient selection or preoperative functional vascular assessment was performed. Both perioperative complications and 3-month outcomes were assessed through structured telephone interviews at 3 months.

Results
A total of 857 patients have been included, with a majority of endoscopically harvested radial arteries (84% vs. 16%). There were no cases (0%) of postoperative hand ischemia or wound infections. Three patients underwent re-exploration for bleeding. Among patients who completed follow-up interviews, endoscopic radial artery harvest was associated with fewer functional complications compared to open harvest. Specifically, rates of reduced sensation (16.2% vs. 33.3%, p=0.008), loss of strength (3.0% vs. 16.7%, p=0.002), and impairment in daily activities (3.5% vs. 11.9%, p=0.037) were all significantly lower in the endoscopic group.

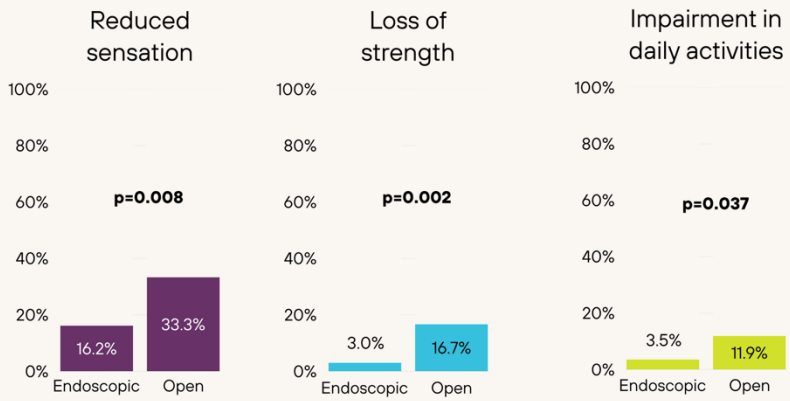
Conclusion
Omission of preoperative functional vascular assessment before radial artery harvest is safe, with no cases of postoperative hand ischemia observed in this large contemporary cohort. Endoscopic harvesting leads to less impairment of sensory and motor function at 3 months. These findings support a more widespread use of radial artery utilization, facilitating broader adoption of total arterial revascularization strategies.

Clinical Outcomes Of Radial Artery Harvesting Without Preoperative Functional Vascularization Assessment In Coronary Bypass Surgery

N=857

0% hand ischemia

Endoscopic vs. open harvest **(84% vs. 16%)**



Abstract

15.30 uur

HEART RHYTHM TRANSITION DYNAMICS AFTER CARDIAC SURGERY: A MULTISTATE ANALYSIS USING CONTINUOUS IMPLANTABLE LOOP RECORDER MONITORING

Michal J. Kawczynski[1,2], Martijn D. Gilbers[3], Joris Winters[2,4], Roman Mahbubi[1,4], Bart Maesen[1,2], Jos G. Maessen[1,2], Uli Schotten[2,4], Elham Bidar[1,2]

[1]Department of Cardiothoracic Surgery, Heart and Vascular Centre Maastricht University Medical Centre, Maastricht, The Netherlands; [2]Cardiovascular Research Institute Maastricht (CARIM), Maastricht, The Netherlands; [3]Department of Cardiothoracic Surgery, University of Groningen, University Medical Centre Groningen, Groningen, The Netherlands; [4]Department of Physiology, Maastricht University, Maastricht, The Netherlands

Objectives

Postoperative atrial fibrillation (POAF) involves dynamic, bidirectional transitions between sinus rhythm (SR) and AF that may persist after hospital discharge. Current monitoring strategies rely on single time-point assessments and fail to capture time-varying changes. This study aims to characterize SR↔AF transition dynamics to improve decisions on monitoring duration.

Methods

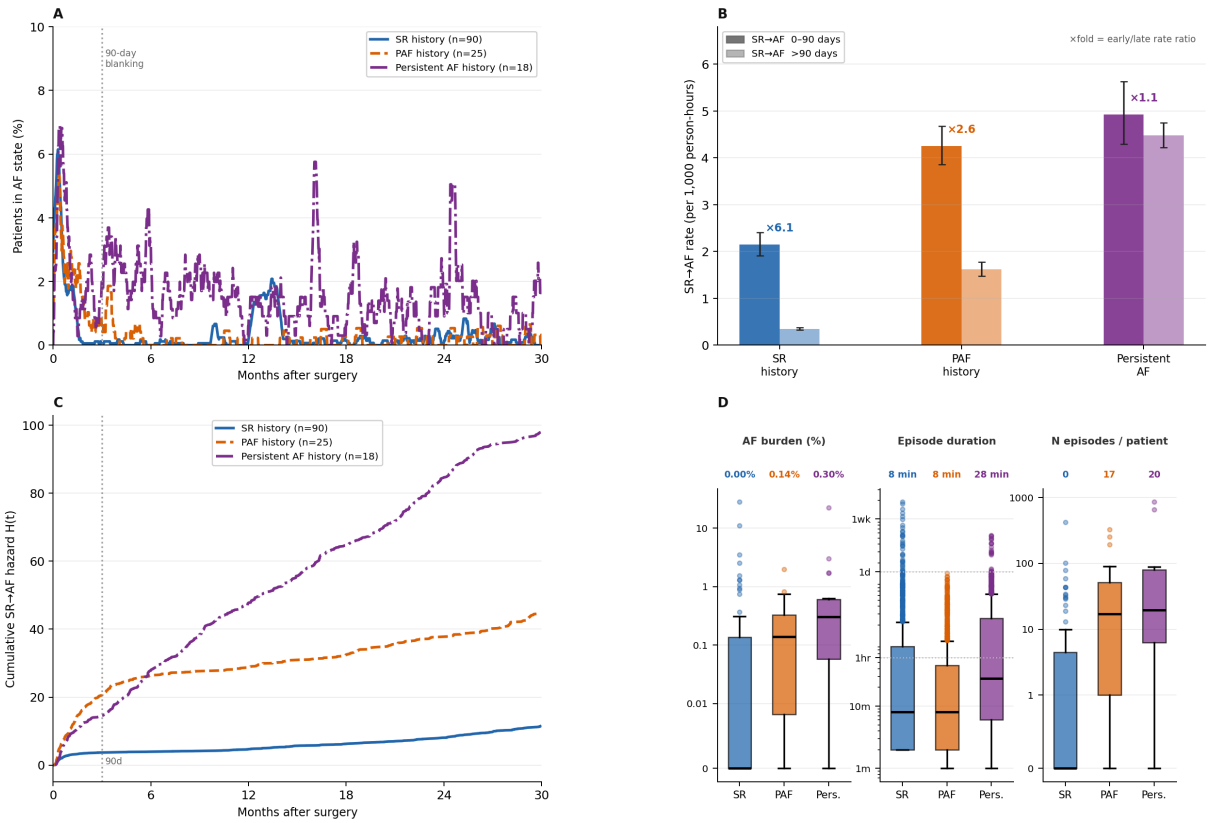
133 consecutive patients from the prospective RACE-V cohort underwent cardiac surgery with concurrent loop recorder (ILR) implantation, providing minute-resolution monitoring over a median of 988 days (IQR 790–1,062). Patients were stratified by preoperative rhythm: SR-history (n=90), paroxysmal AF (PAF, n=25), or persistent AF (n=18). From 4,352 verified AF-episodes, exact SR→AF and AF→SR transition times were reconstructed. A shared gamma-frailty model was fitted to account for non-Markovian, history-dependent recurrence and between-patient heterogeneity.

Results

The overall SR→AF transition rate was 1.34/1,000 person-hours, with clear group differences: 0.50 in SR-history, 2.28 in PAF, and 4.55 in persistent AF. SR-history and PAF patients showed pronounced blanking-period effects, with early rates 6.1-fold and 2.6-fold higher than late rates, whereas persistent AF showed little early excess (1.1-fold), consistent with a substrate-driven rather than surgery-triggered pattern. Median POAF burden remained low across groups at 0.00%, 0.14%, and 0.30% of follow-up. Episodes were short in SR-history and PAF-patients (median 8 minutes) but longer in persistent AF (median 28 minutes).

Conclusion

ILR-monitoring enables modelling of SR↔AF dynamics and reveals distinct transition patterns across preoperative rhythm groups, with a pronounced early surgery-triggered effect in patients with SR and PAF-history. These findings support rhythm group-specific blanking periods and inform personalized monitoring after cardiac surgery.


A
SR history (n=90)
PAF history (n=25)
Persistent AF history (n=18)
90-day blanking
Patients in AF state (%)
Months after surgery
B
SR→AF 0–90 days
SR→AF >90 days
×fold = early/late rate ratio
SR→AF rate (per 1,000 person-hours)
×6.1
×2.6
×1.1
SR history
PAF history
Persistent AF
C
SR history (n=90)
PAF history (n=25)
Persistent AF history (n=18)
90d
Cumulative SR→AF hazard H(t)
Months after surgery
D
AF burden (%)
0.00%
0.14%
0.30%
Episode duration
8 min
8 min
28 min
N episodes / patient
0
17
20
SR
PAF
Pers.

Abstract

15.45 uur

IMPROVING INVASIVE DIAGNOSTICS AND TREATMENT IN NSTE-ACS: EFFECTS OF WITHHOLDING P2Y12 INHIBITOR PRE-TREATMENT ON TIME TO CORONARY ARTERIAL BYPASS GRAFTING

Miriam Scheurwater, MD[1*]; Ismail Cenik, MD[1]; Veerle van Hattem, MD[1]; Mileen van de Kar, MD[1]; Daniela Schulz, PhD[1]; Gijs van Steenbergen, MD, PhD[1]; Ferdi Akca MD, PhD[1]; Pieter-Jan Vlaar, MD, PhD[1]; Dennis Van Veghel, PhD[1]

[1]*Catharina Ziekenhuis Eindhoven*

Objectives

Ischemic benefits of routine P2Y12 inhibitor pre-treatment in non–ST-elevation acute coronary syndrome (NSTE-ACS) patients undergoing early invasive strategy is uncertain, while its use delays coronary artery bypass grafting (CABG) due to increased bleeding risk. We aimed to evaluate the efficacy of a revised institutional protocol withholding P2Y12 inhibitor pre-treatment in NSTE-ACS patients.

Methods

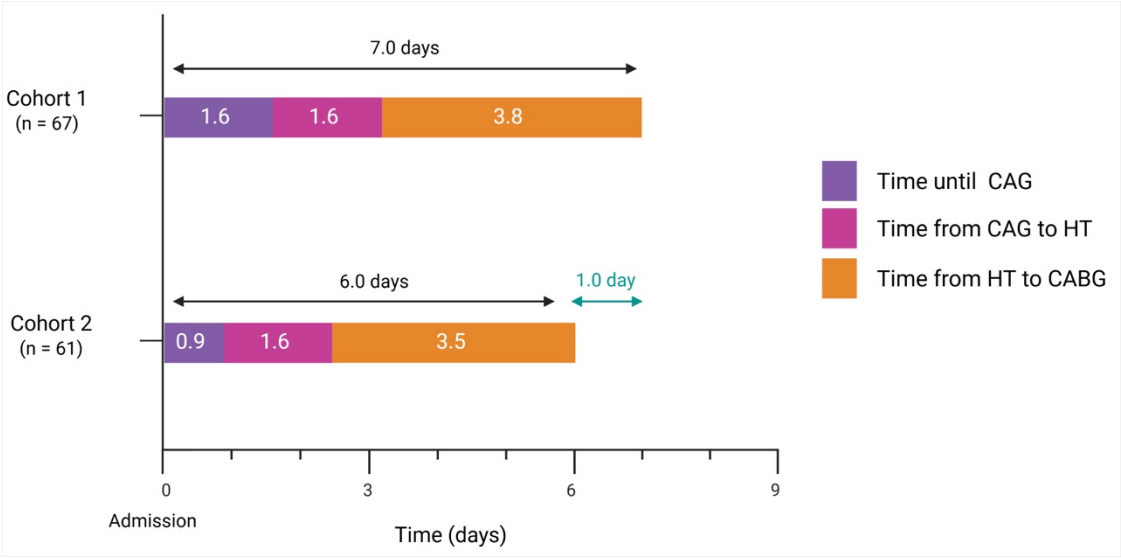
This retrospective cohort study compared a traditional NSTE-ACS management protocol (January 2021-January 2024, cohort 1) containing routine P2Y12 inhibitor, with a revised protocol (May 2024-October 2025, cohort 2) omitting P2Y12 inhibitor pre-treatment and targeting coronary angiography (CAG) <24 hours from admission. The primary outcome was timely revascularization defined as the proportion of patients undergoing CABG within 5 days or percutaneous coronary intervention (PCI) <24 hours from admission. Secondary outcomes included average time to CAG, heart team, revascularization and 30-day clinical outcomes.

Results

Among 1244 patients with NSTE-ACS, the revised protocol significantly improved timely revascularization for CABG (45.9%, n=61 vs. 28.4%, n=67; P=0.02) and PCI (74.1%, n=776 vs. 64.0% n=340, P=0.01). Average time to revascularization was significantly reduced in CABG patients (7.0 days vs. 6.0 days, P=0.02)**(Figure)**. In CABG patients, red blood cell transfusions decreased from 28.4% to 11.5% (p = .02). No significant differences were observed in 30-day mortality or other clinical outcomes.

Conclusion

A protocol that withheld routine P2Y12 inhibitor pre-treatment was associated with improved timely revascularization for both CABG and PCI and with less red cell transfusion among CABG-treated patients, without evidence of compromising short-term clinical outcomes.


7.0 days
Cohort 1
(n = 67)
1.6
1.6
3.8
6.0 days
1.0 day
Cohort 2
(n = 61)
0.9
1.6
3.5
Time until CAG
Time from CAG to HT
Time from HT to CABG
0
3
6
9
Admission
Time (days)

Abstract

16.00 uur

PCSK9 INHIBITION ATTENUATES VEIN GRAFT FAILURE INDEPENDENT OF LIPID LOWERING BY REDUCING INTRAPLAQUE HEMORRHAGE AND VCAM1-MEDIATED LEUKOCYTE INFILTRATION

Vincent Q. Sier[1,2], Fardin Ibrahimi[1,2], Merel E. Tebbens[3,4], Loris Van Brackel[1,2], Nicky Kruit[1,2], Kayleigh van Dijk[1,2], Hendrika A.B. Peters[1,2,4], Jaap D. van Buul[3,4], Paul H.A. Quax[1,2], Raymond Noordam[5,6], Margreet R. de Vries[1,2,7]

[1]Department of Surgery, Leiden University Medical Center, Leiden; [2]Einthoven Laboratory for Experimental Vascular Medicine, Leiden University Medical Center, Leiden; [3]Department of Medical Biochemistry, Vascular Biology Lab, Amsterdam UMC, University of Amsterdam, Amsterdam; [4]Section Molecular Cytology at Swammerdam Institute for Life Sciences, Leeuwenhoek Centre for Advanced Microscopy, University of Amsterdam, Amsterdam; [5]Health Campus the Hague/Public Health and Primary Care, Leiden University Medical Center, The Hague/Leiden; [6]Department of Clinical Epidemiology, Leiden University Medical Center, Leiden; [7]Department of Surgery, Brigham & Women's Hospital and Harvard Medical School, Boston, MA 02115, USA

Objectives

Proprotein convertase subtilisin/kexin type 9 inhibition (PCSK9i) reduces atherosclerotic events and repeat revascularization, with data suggesting possible benefits beyond lipid lowering. Vein graft atherosclerosis, a major cause of bypass graft failure, is characterized by advanced plaque formation with immature, leaky neovessels that promote intraplaque hemorrhage (IPH) and leukocyte infiltration. Therefore, we investigated cholesterol-independent effects of PCSK9i on vein graft atherosclerosis.

Methods

In 46,410 UK Biobank participants, we examined cholesterol independent associations between 2,922 plasma proteins and incident coronary artery disease (CAD) using multivariable adjusted time to event analyses stratified by median plasma PCSK9 levels in participants free of CAD at baseline. ApoE3*Leiden mice on high or moderate cholesterol diets underwent vein graft surgery and received weekly intraperitoneal alirocumab or control IgG. Remodeling was assessed by ultrasound, optoacoustics, histology, three dimensional immunolabeling, and in vitro assays.

Results

We identified 287 proteins that differentially associated with CAD between individuals with low or high normalized plasma PCSK9. $PCSK9^{hi}$-to-$PCSK9^{lo}$interaction analyses revealed overrepresented pathways, including cell migration-regulation and leukocyte-vascular wall interactions. In-vitro, PCSK9i induced endothelial cell migration by 36.5% promoted angiogenic sprouting by 35.4%, and improved maturation of neovessels by 28.9%. In vivo, an two-fold increased density and proportion of mature neovessels were observed in PCSK9i groups respective to the cholesterol-matched mice, resulting in reduced intraplaque angiogeneesis Furthermore, PCSK9i decreased VCAM1 expression on plaque neovessels by 2-fold, resulting in 59% attenuation of $CD3^{+}$leukocyte infiltration.

Conclusion

Beyond lipid lowering, PCSK9i promotes vein graft stability by enhancing neovessel maturation and reducing IPH and VCAM1-mediated leukocyte infiltration.

Pitch

16.15 – 16.45 uur

RIGHT VENTRICULAR DIASTOLIC FLOW MISALIGNMENT IN REPAIRED TETRALOGY OF FALLOT WITH CHRONIC PULMONARY REGURGITATION

Rahi S Alipour Symakani[1,2], Wouter J van Genuchten[1], Margherita Premi[1], Anouk Moerdijk[1], Yichuang Han[1], Jason Voorneveld[1], Rob van der Geest[3], Piotr Wielopolski[1], Jolanda Wentzel[1], Martijn Kauling[1], Yannick JHJ Taverne[1], Alexander Hirsch[1], Willem A Helbing[1], Daphne Merkus[1], Beatrijs Bartelds[1]

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Objectives

Right ventricular (RV) failure is a late complication after repair of tetralogy of Fallot (rTOF), commonly associated with pulmonary regurgitation (PR), though mechanisms remain unclear. This study investigates the impact of PR on diastolic flow alignment relative to systolic outflow.

Methods

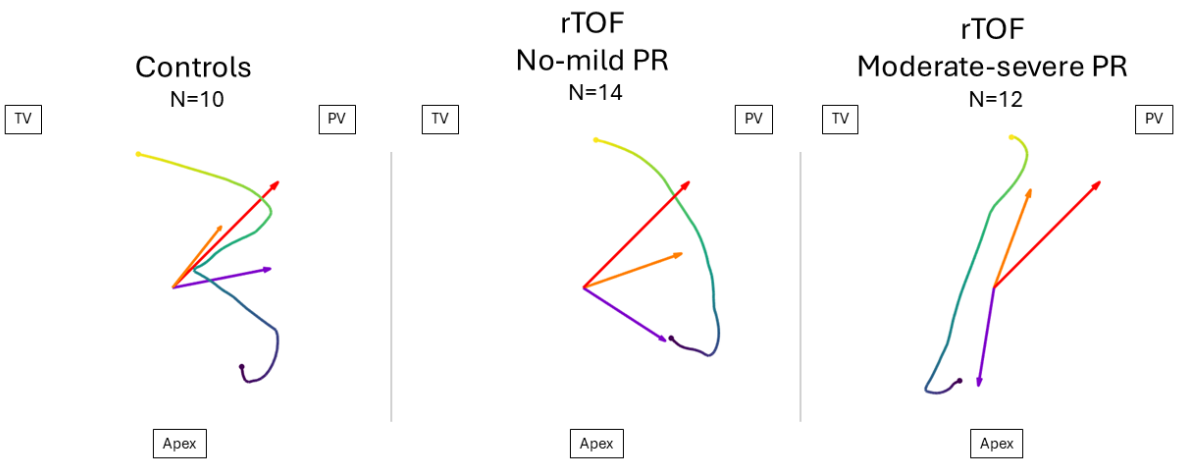
4D flow cardiovascular magnetic resonance was used to quantify 3D vector-based flow directions during systole, early and late diastole in rTOF patients without (n=14) or with (n=12) significant PR, and in healthy controls (n=10). Flow quality was assessed using viscous energy loss (EL) and kinetic energy (KE).

Results

In rTOF, early diastolic flow deviated significantly from the systolic outflow direction compared to controls, with greater deviation in significant PR, accompanied by elevated KE and EL. Late diastolic alignment with systolic flow was preserved across groups, but patients with significant PR showed persistently elevated EL. The biphasic diastolic flow pattern observed in controls was absent in rTOF.

Conclusion

rTOF is characterized by disrupted diastolic flow, with misalignment of early diastolic flow relative to systolic outflow, present even without significant PR but more pronounced with PR. Despite preserved late diastolic alignment, flow remains energetically inefficient in significant PR. These findings suggest flow misalignment as a potential mechanism contributing to RV dysfunction in rTOF.



Diastolic flow trajectory (early to late)
Early diastolic flow direction
Late diastolic flow direction
Systolic flow direction

PV: pulmonary valve
rTOF: repaired tetralogy of Fallot
TV: tricuspid valve

Pitch

16.15 – 16.45 uur

UPPER-HEMI STERNOTOMY AORTIC ARCH SURGERY WITHOUT CIRCULATORY ARREST: A PROOF-OF-CONCEPT STUDY OF ZONE 1-2 REPAIR

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Objectives

Aortic arch surgery (zone 1-2) is traditionally performed through sternotomy and frequently requires hypothermic circulatory arrest to facilitate distal anastomosis and cerebral protection. While effective, circulatory arrest is associated with neurological and systemic risks. Minimally invasive approaches for arch pathology remain scarcely reported, largely due to concerns regarding exposure, cannulation strategies and cerebral protection. This study evaluates the technical feasibility and early clinical outcomes of performing aortic arch surgery through an upper-hemi sternotomy without circulatory arrest.

Methods

All consecutive patients undergoing aortic arch surgery (zone 1-2) through upper-hemi sternotomy were retrospectively analyzed. Femoral arterial cannulation was used in all patients. Cerebral protection was achieved by direct brachiocephalic trunk cannulation for 1/3 arch (zone 1) procedures and by additional direct left carotid artery cannulation for zone 2 procedures, using a 13-Fr cannula. Clamping was achieved in either zone 1 or 2.

Results

Nine patients were included. Median age was 64 years [IQR 57–68], and 77.8% were male. Procedures performed included ascending aortic replacement with 1/3 arch extension (n=4), Bentall procedure with 1/3 arch replacement (n=1), aortic valve replacement with ascending aortic replacement and 2/3 arch extension (n=2), aortic valve replacement with ascending aortic replacement (n=1), and aortic valve plasty with ascending aortic replacement and 1/3 arch extension (n=1). Surgical access was obtained at the third intercostal space (n=8) or fourth intercostal space (n=1). No conversion to full sternotomy or need for circulatory arrest occurred. Median cardiopulmonary bypass and cross-clamp time were 225 [IQR 164–266] and 115 [IQR 74–127] minutes, respectively. There was no operative or 30-day mortality and no postoperative stroke or neurological deficit. Median chest drain output was 240 ml [IQR 200–340]. Postoperative atrial fibrillation occurred in two patients and one patient required pericardial drainage. Median intensive care and hospital stay were 1 day [IQR 1–1] and 5 days [IQR 5–9], respectively.

Conclusion

Upper-hemi sternotomy aortic arch surgery without circulatory arrest is safe and feasible. These findings support the use of a minimally invasive, no-circulatory arrest strategy in selected patients.

Pitch

16.15 – 16.45 uur

TRANSAXILLARY HEART VALVE SURGERY: INITIAL SINGLE-CENTER EXPERIENCE

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Objectives

The transaxillary approach for heart valve surgery is a minimally invasive technique aimed at reducing surgical trauma and enhancing recovery. This approach is designed to be easily adoptable within existing cardiac surgical programs and applicable across different valve procedures. This study reports the initial single-center experience and early clinical outcomes.

Methods

In this prospective observational cohort study, all consecutive patients undergoing transaxillary heart valve surgery between May 2025 and March 2026 at a single center were included. Baseline, procedural and postoperative data were prospectively collected.

Results

A total of 100 patients were included. Median age was 70 years [61–73], and 69% were male. The median EuroSCORE II was 0.92% [0.69–1.27]. Left ventricular function was normal in 83.5% of patients. Six patients (6%) underwent surgery for urgent indications and active endocarditis was present in 2 patients (2%).

Procedures included aortic valve replacement (n=65), mitral valve repair or replacement (n=28), combined mitral and tricuspid valve procedures (n=5) and myxoma resection (n=2).

The third intercostal space was used in 16.5% of cases and the fourth in 83.5%. Procedural times increased with complexity (isolated AVR - CPB 105/CC 66 minutes, isolated MV – CPB 162/CC 98 minutes, combined MV-TV – CPB 235/CC 150 minutes). Concomitant rhythm surgery was performed in 11% of patients.

Median hemoglobin at discharge was 7.2 mmol/L [6.6–7.8] with a median blood loss of 350 mL [240–495].

No stroke occurred. Re-exploration for bleeding was required in 2 patients (1 within 24 hours). Atrial fibrillation occurred in 25%, permanent pacemaker implantation in 2%, ICU readmission in 1%, and pleural drainage in 2%. Perioperative and 30-day mortality were 0%. Median length of hospital stay was 4 days [3–5].

Conclusion

Transaxillary valve surgery is a feasible minimally invasive alternative to sternotomy that can be readily adopted within existing cardiac surgical programs. In this cohort, the approach was associated with low mortality and morbidity, as well as a short hospital stay.

Pitch

16.15 – 16.45 uur

MATERNAL, VALVULAR AND FOETAL OUTCOMES OF PREGNANCY FOLLOWING AORTIC VALVE REPLACEMENT

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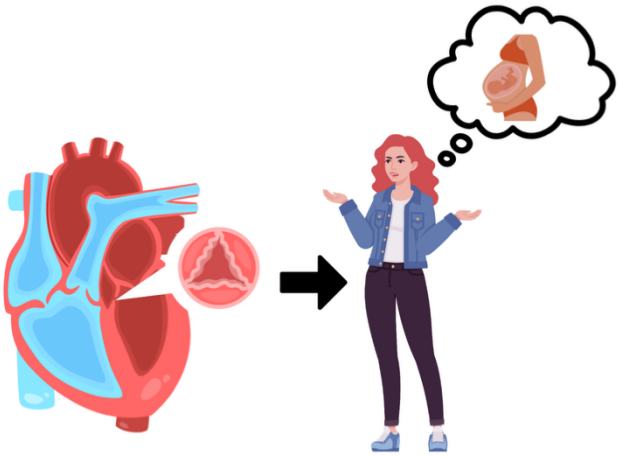
Objectives
To investigate the optimal valve substitute for young women requiring aortic valve replacement (AVR), allowing improved future valve-related outcomes for mother and foetus during pregnancy

Methods
A systematic search was performed for publications between 1998-2025 reporting women experiencing pregnancy after AVR with a pulmonary autograft (Ross-procedure), homograft, bioprosthesis (xenograft) or mechanical valve. Pooled proportions were calculated to determine maternal, valvular and foetal outcomes during pregnancy using generalized linear mixed models

Results
Thirteen studies reporting 356 pregnancies in 251 women(pooled mean age at pregnancy 29.1 ±4.8 years) after AVR with a pulmonary autograft (70 women, 119 pregnancies), homograft (73 women, 99 pregnancies), bioprosthesis (37 women, 50 pregnancies), or mechanical valve (71 women, 88 pregnancies) were included.*During pregnancy,*valve-related reintervention in women with a bioprosthesis was 2.7%(95%CI:0.4-16.9) at 5.1±2.5years after AVR. This was not observed in women with pulmonary autografts (7.7±4.2years after AVR) and homografts(4.1±3.3years after AVR). Reintervention for valve thrombosis(4.9%(95% CI:1.6-14.0)) and maternal death (1.1%(95%CI:0.2-7.6)) occurred only in women with mechanical valves(8.1±4.5 years after AVR). Pooled probability of liveborn delivery was 71.7%(95%CI:59.2-81.6) in women with a mechanical valve, compared to 90.6%(95%CI: 72.4-97.3), 92.3%(95%CI:56.0-99.1) and 82.9%(95%CI:53.3-95.4) in women with an autograft, homograft or bioprosthesis respectively

Conclusion
Maternal mortality and valve thrombosis during pregnancy occurred only in women with mechanical valves. Although no statistical comparisons were made, pregnancies in women with pulmonary autograft, homograft or bioprosthesis showed acceptable maternal and foetal outcomes. These descriptive findings provide foundations for further investigation of tissue-valve function before, during and after pregnancy, aiming for more support of current guidelines.



During pregnancy	Autograft	Homograft	Bioproshtesis	Mechanical valve
	70	73	37	71
	119	99	50	88
†	0%	0%	0%	1.1% (0.16-7.6)
	2.3% (0.3-14.8)	0%	2.7% (0.4-16.9)	4.9% (1.6-14.0) (valve thrombosis)
	5.3% (2.0-13.2)	0%	0%	8.1% (2.2-25.7)
	90.6% (72.4-97.3)	92.3% (56.0-99.1)	82.9% (53.3-95.4)	71.7% (59.2-81.2)

Pitch

16.15 – 16.45 uur

OUTCOMES AFTER ENDOVASCULAR TREATMENT OF TYPE A AORTIC DISSECTIONS: AN ANALYSIS OF THE VASCULAR QUALITY INITIATIVE

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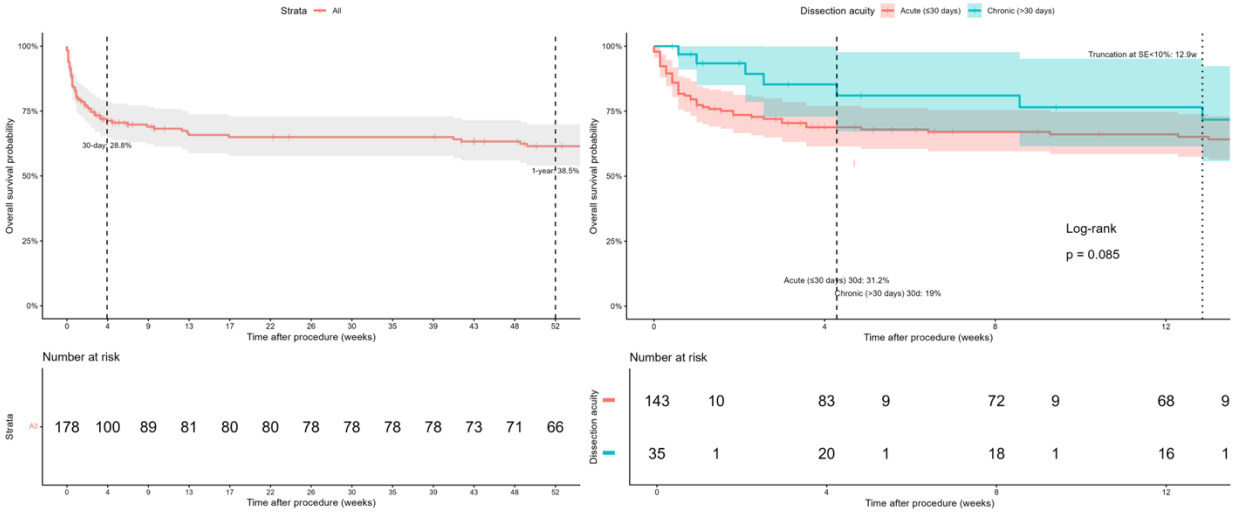
Objectives
Endovascular repair has emerged as an alternative for type A aortic dissection (TAAD) patients unsuitable for open surgery, but real-world outcome data remain limited.

Methods
This retrospective cohort study used the Society for Vascular Surgery Vascular Quality Initiative registry (2014--2024). Patients undergoing endovascular TAAD repair were included, excluding those with rupture, aneurysmal degeneration, or prior ascending/arch repair. Outcomes included technical success, in-hospital, 30-day, and 1-year mortality, complications, and reinterventions. Acute (≤30 days) and chronic (>30 days) dissections were compared. Multivariable logistic regression identified factors associated with mortality.

Results
Of 178 patients (median age 60, IQR 49-70), 71% had acute dissections and 90% presented with complications. Technical success was 97%. In-hospital mortality was 22%, with Kaplan-Meier estimated mortality of 28.8% at 30 days and 38.5% at 1 year. Acute dissections had higher rates of malperfusion (56% vs 8.6%, P<.001), emergency treatment (52% vs 8.2%, P<.001), in-hospital mortality (26% vs 5.9%, P=.010), and perioperative complications (62% vs 34%, P=.004) compared with chronic cases. However, dissection acuity was not independently associated with mortality. Emergency procedures and coronary artery disease were independently associated with in-hospital mortality, while diabetes was associated with 1-year mortality.

Conclusion
Endovascular TAAD repair was technically feasible but carried substantial mortality and frequent reintervention. Outcomes were driven by presentation severity and comorbidities rather than dissection chronicity, highlighting the importance of careful patient selection and systematic outcome reporting.


Strata All
Overall survival probability
100%
75%
50%
25%
0%
30-day: 28.8%
1-year: 38.5%
0 4 9 13 17 22 26 30 35 39 43 48 52
Time after procedure (weeks)
Number at risk
Strata
All 178 100 89 81 80 80 78 78 78 78 73 71 66
0 4 9 13 17 22 26 30 35 39 43 48 52
Time after procedure (weeks)
Dissection acuity Acute (≤30 days) Chronic (>30 days)
Truncation at SE<10%: 12.9w
Log-rank
p = 0.085
Acute (≤30 days) 30d: 31.2%
Chronic (>30 days) 30d: 19%
0 4 8 12
Time after procedure (weeks)
Number at risk
Dissection acuity
143 10 83 9 72 9 68 9
35 1 20 1 18 1 16 1
0 4 8 12
Time after procedure (weeks)