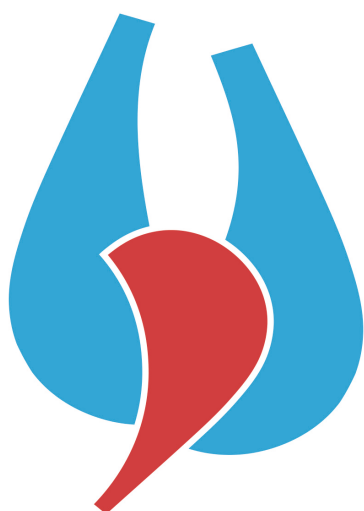


PROGRAMMA VOORJAARSWEBINAR NVT

21 mei 2021



Nederlandse Vereniging voor
Thoraxchirurgie

Abstractsessie: van 13.00 tot 14.30 uur
ALV: van 15.00 tot 16.15 uur

Sponsors



Organisatie, accreditatie, ALV

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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. De ALV zal toegankelijk zijn via een aparte link welke men ontvangt na aanmelding via de website.

Programma 21 mei 2021

13.00 uur **Opening**

13.10 – 14.30 uur **Wetenschappelijke vergadering - abstracts**

Moderators: Dr. P. Sardari Nia en

13.10 uur **Y.C. Yalcin**

THE COURSE, IMPACT AND PREDICTORS FOR MORTALITY FOLLOWING AORTIC REGURGITATION IN LEFT VENTRICULAR ASSIST DEVICE PATIENTS: AN ANALYSIS OF THE IMACS DATABASE

13.18 uur **I.D.G. Klop**

COMPARING QUALITY OF LIFE AND POSTOPERATIVE PAIN AFTER LIMITED ACCESS AND CONVENTIONAL AORTIC VALVE REPLACEMENT: A RANDOMIZED CLINICAL TRIAL

13.26 uur **G.J. van Steenberg**

IMPACT OF PREOPERATIVE ANTITHROMBOTIC THERAPY IN PATIENTS UNDERGOING ELECTIVE ISOLATED CORONARY ARTERY BYPASS GRAFTING

13.34 uur **F.R. Halfwerk**

QUANTIFICATION OF IN-HOSPITAL PATIENT MOBILIZATION AFTER CARDIAC SURGERY USING ACCELEROMETERS: THERE IS MORE THAN MEETS THE EYE

13.42 uur **B. Arabkhani**

SURGERY FOR AORTIC ROOT ANEURYSM: IS A VALVE-SPARING APPROACH PREFERABLE? SHORT-TERM OUTCOME FROM THE AVIATOR DATABASE

13.50 uur **S. Khadjeh**

AN EARLY EVALUATION OF OUTCOMES OF THE ZONE 2 ARCH PRINCIPLE FOR ACUTE DEBAKEY TYPE 1 AORTIC DISSECTION

13.58 uur **D.J. de Oliveira Marreiros**

COMPUTED TOMOGRAPHY FOLLOW-UP AFTER ELECTIVE PROXIMAL AORTIC SURGERY, IS IET REALLY NECESSARY?

14.06 uur **N.M.A.J. Timmermans**

PROSTHETIC VALVE ENDOCARDITIS AFTER AORTIC VALVE REPLACEMENT: IS THERE A DIFFERENCE BETWEEN BIOLOGICAL AND MECHANICAL PROSTHESES?

14.14 uur **S. Abdullah/G.N. Schouten**

LOBECTOMY AS PART OF MULTIMODALITY APPROACH IN STAGE III N2 NON-SMALL CELL LUNG CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS

14.22 uur **B.P. Hermans**
EFFECTIVENESS OF A NOVEL NHS-POX BASED SEALANT: A
COMPARATIVE STUDY IN AN EX-VIVO PORCINE LUNG MODEL

14.30 – 15.00 uur **Pauze**

15.00 – 16.15 uur **Algemene Ledenvergadering**

13.10 uur

THE COURSE, IMPACT AND PREDICTORS FOR MORTALITY FOLLOWING AORTIC REGURGITATION IN LEFT VENTRICULAR ASSIST DEVICE PATIENTS: AN ANALYSIS OF THE IMACS DATABASE

Yunus C. Yalcin^{1,2}; Jesse F. Veenis², Kevin M. Veen¹, Ozcan Birim¹, Ad J.J.C. Bogers¹, Jasper J. Brugts² and Kadir Caliskan²

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Purpose

The development of significant, moderate-to-severe aortic regurgitation (AR) following left ventricular assist device (LVAD) implantation has been poorly described. We aimed to investigate the course, impact, and predictors for mortality following the development of significant AR in LVAD patients.

Methods

The data from the International Mechanically Assisted Circulation Support (IMACS) registry was used. All adult LVAD patients, implanted between January 2013 until September 2017, with at least 1 echocardiogram available following implantation were included. Advanced joint-model analyses were used to elucidate the impact of significant AR on mortality in LVAD patients, corrected for baseline confounders.

Results

In total, 12.810 patients (median age 58, IQR [48-66], 78.5% male) were included, with 36.343 echocardiograms available. Significant AR following LVAD implantation was observed in 1.660 patients (12.9%) on 2.660 unique echocardiograms. The development of significant AR was associated with an estimated excess mortality of 20% (60% vs 80%, $p < 0.001$), with the strongest predictor being the speed of development of significant AR, with a hazard ratio of 3.34 (95% CI 1.87-6.48). Predictors for the development of significant AR included mild AR at baseline and prolonged LVAD support. Concomitant aortic valve replacement was associated with a significant lower risk for the development of significant AR, while aortic valve repair was not.

Conclusion

The development of significant AR was associated with excess mortality, especially when it occurs faster in the follow-up period. Furthermore, significant AR developed in 1 in 8 LVAD patients approximately, with prior mild AR and prolonged LVAD support being important predictors.

Figure

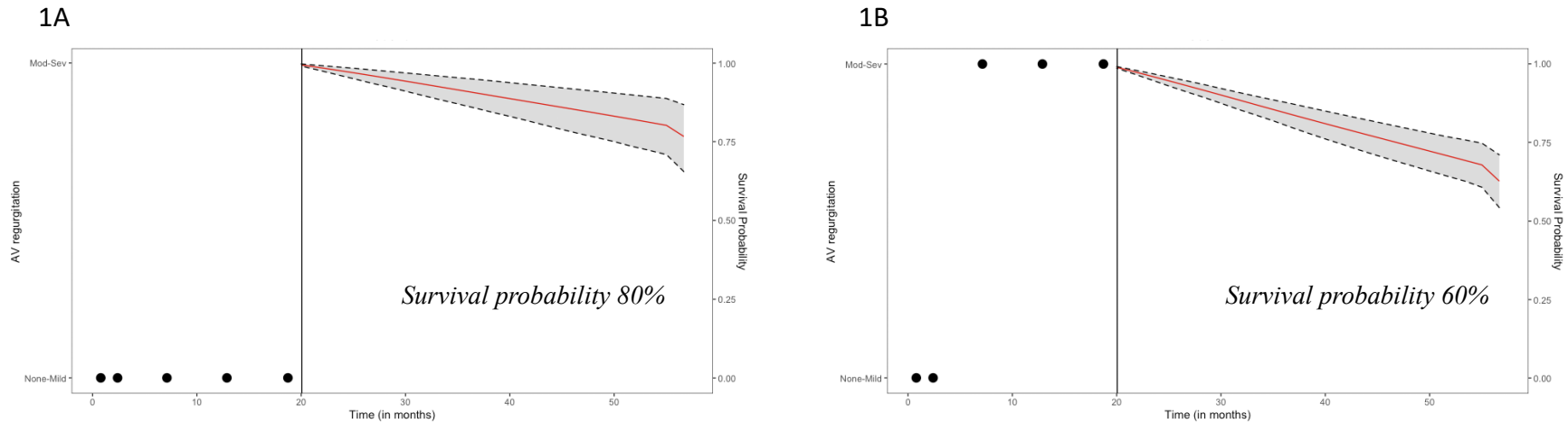


Figure 1a and **Figure 1b** show the same patient with the same baseline variables. At t = 20 months the patient in **Figure 1a**, the patient has 5 consecutive echocardiograms, all showing no significant aortic regurgitation. The estimated survival at t = 20 months is 80%. **Figure 2a** shows the same patient, however, this time the patient develops significant aortic regurgitation at t = 7 months with consecutive echocardiograms showing significant aortic regurgitation. The estimated survival at t = 20 months is 60%, showing a reduction of 20% (80% vs 60%, $p < 0.001$).

Abstract

13.18 uur

COMPARING QUALITY OF LIFE AND POSTOPERATIVE PAIN AFTER LIMITED ACCESS AND CONVENTIONAL AORTIC VALVE REPLACEMENT: A RANDOMIZED CLINICAL TRIAL

I.D.G. Klop¹, P.T. Nieuwkerk², B.P. van Putte¹, G.T.L. Kloppenburg¹, M.A.G. Sprangers², P. Klein¹
¹St. Antonius Ziekenhuis, Nieuwegein; ²Amsterdam Universitair Medische Centra, Amsterdam.

Purpose

Limited access aortic valve replacement (LA-AVR) has gained popularity as an alternative to conventional AVR (C-AVR) by full median sternotomy. While safety and efficacy of LA-AVR have been demonstrated, robust data on differences in improvement in Quality of Life (QoL) and postoperative pain is lacking. We report the results of the Limited access Aortic valve Replacement (LIAR) Trial.

Methods

The LIAR-Trial is an investigator initiated, single center, randomized controlled trial. Patients with isolated severe aortic valve stenosis were randomized 1:1 to undergo either LA-AVR by partial upper hemisternotomy or C-AVR. Primary outcome was cardiac specific QoL, measured with the Kansas City Cardiomyopathy Questionnaire (KCCQ) up to one year postoperatively and in-hospital postoperative pain (utilizing the Visual Analogue Scale). Secondary outcomes included all other QoL domains and surgical outcomes. Patients ineligible for randomization were monitored in a prospective registry.

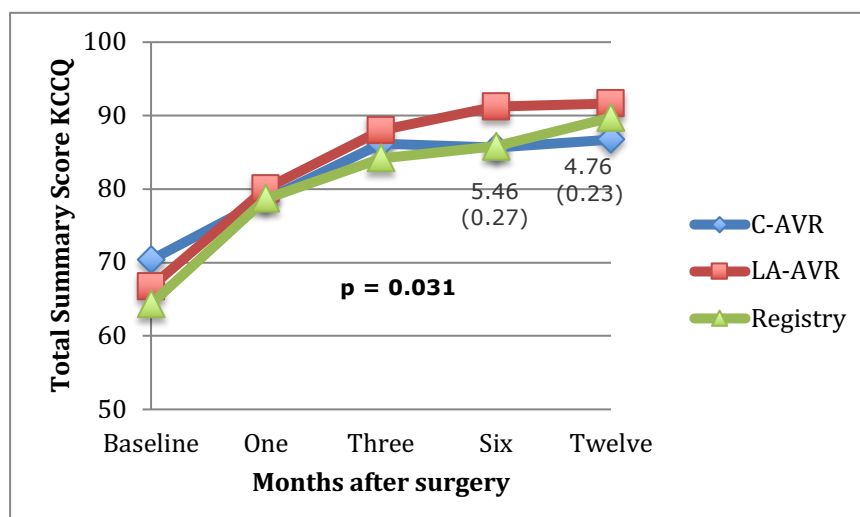
Results

221 patients were included in the trial, of which 161 were randomized. Per protocol analysis demonstrated small but significant differences in the primary outcome: both the physical limitations domain (2.22 points; 95%CI, 0.54–3.89; $p=0.010$) and the total symptom score of the KCCQ (3.31 points; 95%CI, 0.30–6.31; $p=0.031$) showed an improved outcome in patients after LA-AVR compared to C-AVR. Furthermore, LA-AVR was associated with significantly reduced postoperative pain in the first 3 days. No significant differences were found regarding 30-day complications.

Conclusion

LA-AVR is associated with a small but significant improvement in cardiac related QoL, when compared to C-AVR. Additionally, LA is associated with significantly reduced early postoperative pain.

Figure 1. Results of the total symptom score of the KCCQ, up to one year postoperatively.



13.26 uur

IMPACT OF PREOPERATIVE ANTITHROMBOTIC THERAPY IN PATIENTS UNDERGOING ELECTIVE ISOLATED CORONARY ARTERY BYPASS GRAFTING

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Purpose

Clinical outcomes of coronary artery bypass grafting (CABG) have markedly improved in the last decades, despite the increasing risk profile of patients. Nevertheless, postoperative bleeding remains an important issue.

Methods

Patients who underwent elective isolated CABG between 2017- 2019 at the Catharina Hospital Eindhoven were eligible for this study. The primary endpoints were re-exploration for bleeding and postoperative blood product transfusion. Secondary endpoints included several clinical outcomes. Propensity score matching was used to compare outcomes of the main study groups (ASA vs other AT therapy) and subgroups of AT therapy (guideline adherence vs non-adherence).

Results

A total of 1.068 patients were included: 710 patients on ASA monotherapy and 358 patients on other AT regimens. In 256 matched main study groups' patients, using other AT than ASA monotherapy was associated with increased risk of re-exploration for bleeding (6.6% vs 2.0%, $p = 0.017$; OR = 3.57 [1.29 - 9.83]) and increased use of blood products (37.5% vs 20.3%, $p < 0.001$; OR 2.35 [1.58 – 3.49]). In 122 matched subgroup patients, non-adherence was associated with increased risk of re-exploration (10.7% vs 3.3%, $p = 0.044$; OR 3.52 [1.11 – 11.12]) and increased blood product use (51.6% vs 25.4%, $p < 0.001$; OR 3.13 [1.83 – 5.38]). Secondary endpoints were not significantly different among the main study groups and subgroups.

Conclusion

Preoperative use of antithrombotic therapy other than ASA monotherapy in elective CABG patients was associated with increased risk of re-exploration for bleeding and postoperative use of blood products, this finding was even more pronounced in non-guideline-adherent patients.

Abstract

13.34 uur

QUANTIFICATION OF IN-HOSPITAL PATIENT MOBILIZATION AFTER CARDIAC SURGERY USING ACCELEROMETERS: THERE IS MORE THAN MEETS THE EYE

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Purpose

Patients after cardiac surgery infrequently mobilize during their surgical ward stay. Patients are unaware why mobilization is important, and patients' progress of mobilization activities is not available. The aim of this study was to use accelerometers with artificial intelligence algorithms for quantification of in-hospital mobilization after cardiac surgery.

Methods

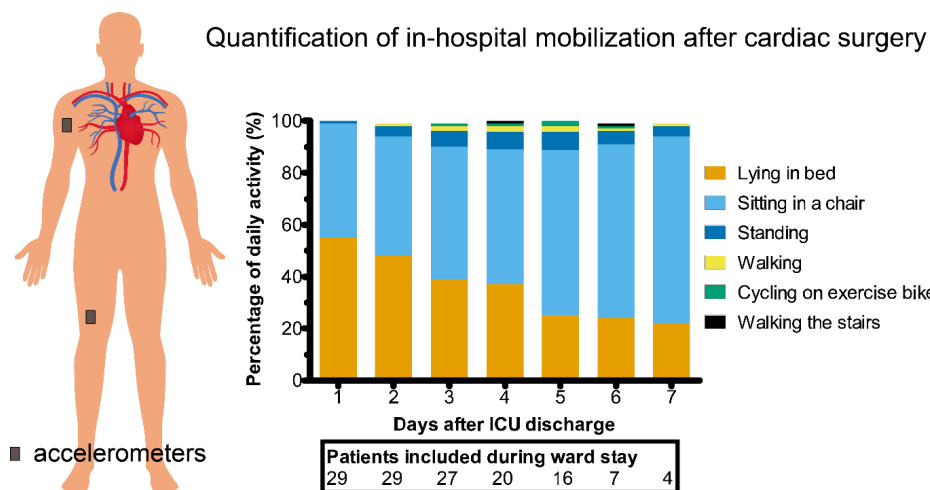
Six static and dynamic patient activities were defined to measure patient mobilization. An accelerometer (AX3, Axivity) was postoperatively placed on both the upper arm and upper leg. An artificial neural network algorithm classified lying in bed, sitting in a chair, standing, walking, cycling on an exercise bike, and walking the stairs. The primary endpoint was each activity duration performed between 7 a.m. and 11 p.m. Secondary endpoints were length of intensive care unit stay and surgical ward stay. A subgroup analysis was performed for male and female patients.

Results

In total, 29 patients were classified after cardiac surgery with an intensive care unit stay of 1 (1–2) night and surgical ward stay of 5 (3–6) nights. Patients spent 41 (20–62) min less time in bed for each following hospital day ($p < 0.001$). Standing ($p = 0.004$), walking ($p < 0.001$), and walking the stairs ($p = 0.001$) increased during hospital stay. No differences between men ($n = 22$) and women ($n = 7$) were observed for all endpoints.

Conclusion

The approach presented in this study is applicable for measuring all six activities and for monitoring postoperative recovery of cardiac surgery patients. A next step is to provide tailored feedback to patients and healthcare professionals, to speed up recovery.



13.42 uur**SURGERY FOR AORTIC ROOT ANEURYSM: IS A VALVE-SPARING APPROACH PREFERABLE?
SHORT-TERM OUTCOME FROM THE AVIATOR DATABASE**

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Purpose

The objective of this study is to evaluate mortality and valve-related outcome of valve-sparing aortic root replacement (VSRR) and to compare it to composite valve-graft conduit (CVG) replacement, in a large cohort of patients with comparable pathology.

Methods

A search from the multicenter AVIATOR database resulted in 2271 patients with aortic root aneurysm with or without aortic valve-regurgitation who underwent VSRR (N= 2005) and CVG (N= 266). Exclusion criteria: aortic dissection, endocarditis and valvular stenosis. Additional propensity-score matched analysis was performed to adjust for differences in patients-characteristics between VSRR and CVG.

Results

Mean follow-up was 3 years (range: 0-12 years; 6,314 patient-years). Mean age was 51 and 53 years in VSRR and CVG, respectively. Early mortality was 0.9% in VSRR versus 2.3% in CVG (OR 2.7; p = 0.03). Survival was 95.6% (95% CI 94-97%) at 5 years in VSRR versus 87.6% (95% CI 82-93%) in CVG. Mortality was higher in CVG after adjusting for age, preoperative left ventricular function and diameter (HR 2.14; 95% CI, 1.28 to 3.57; P = 0.004). Freedom from reoperation at 5 years was 96.9% (95% CI 95-98%) in VSRR and 95.2% (95% CI 91-99%) in CVG. Additionally, there were significantly more thromboembolism, endocarditis and bleeding events in CVG.

Conclusion

This multicenter study shows excellent results after VSRR in patients with aortic root aneurysm with or without valve regurgitation. Compared to CVG procedures, there is a lower mortality and valve-related event rate. Hence, valve-sparing root procedure should be considered as the "gold standard" strategy.

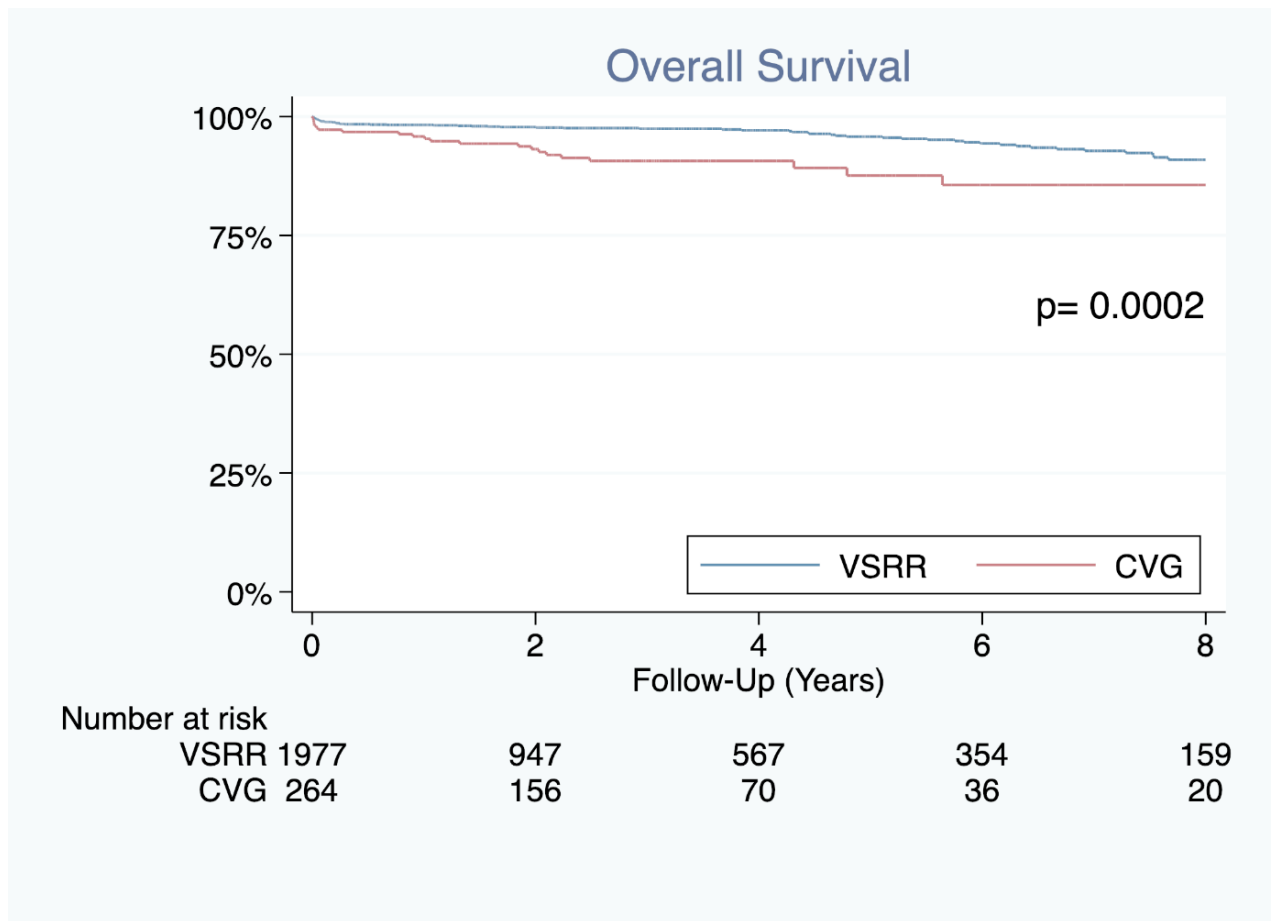


Figure 1. Overall Survival

VSRR: Valve-sparing aortic root replacement; CVG: Composite valve-graft conduit procedures

13.50 uur

AN EARLY EVALUATION OF OUTCOMES OF THE ZONE 2 ARCH PRINCIPLE FOR ACUTE DEBAKEY TYPE 1 AORTIC DISSECTION

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Purpose

Early evaluation of two-thirds arch replacement for acute DeBakey type I aortic dissection, creating a landing zone for eventual thoracic endovascular aortic repair (TEVAR) at a later stage: Zone 2 arch principle for staged, hybrid repair.

Methods

Retrospective, observational study including CT analysis.

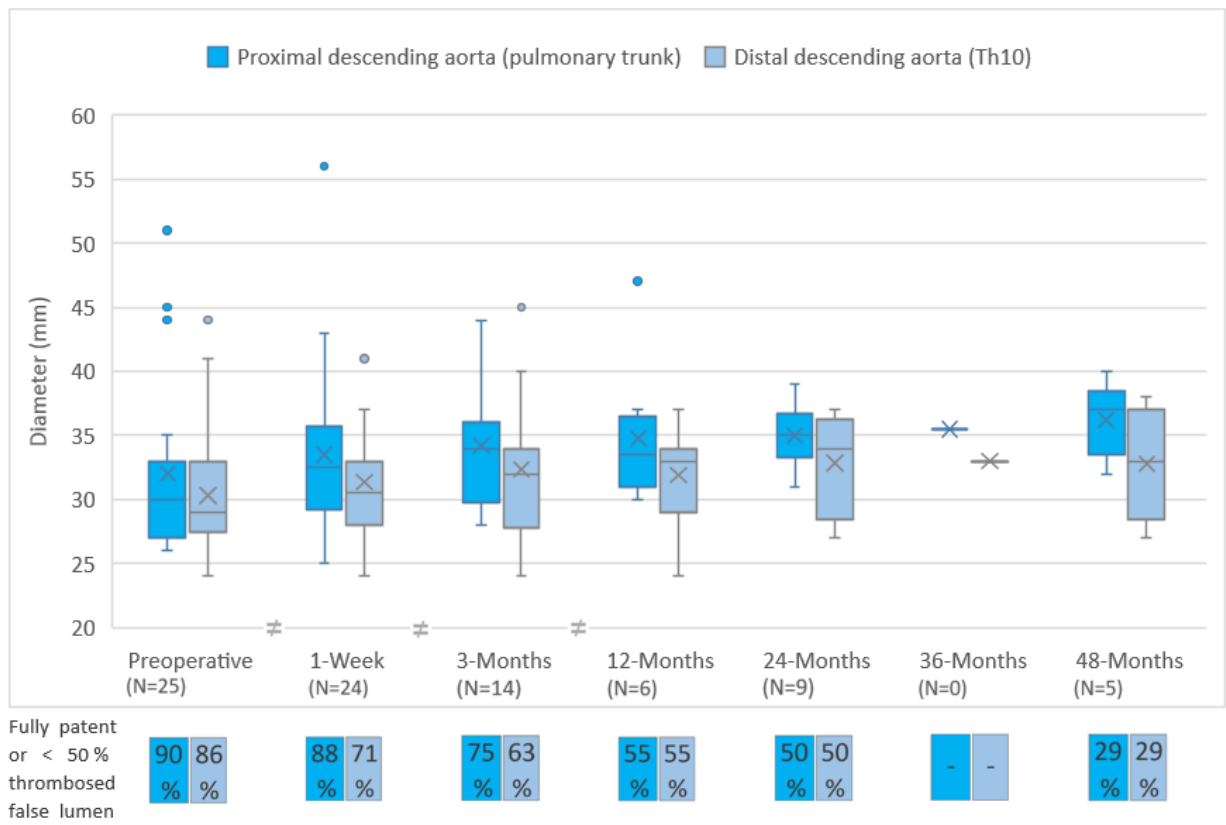
Results

25 patients were included (2016 – 2021, mean age 59±7 yrs). Thirty-day mortality was 8%, disabling stroke rate (modified Rankin Score ≥2) was 4%, and paraplegia rate was 0%. As a result of preoperative severe malperfusion, fasciotomy and laparotomy was performed postoperatively in one patient each (4%). Root re-dissection occurred in one patient (4%), requiring proximal reoperation after 22 days. Median follow-up was 3.8 months [IQR 0.2 – 35.7]. One patient died after 2.7 months (unknown cause). Postoperative CT analysis showed slowly progressive dilatation of the descending aorta, with some outliers (Figure). At present, 5 patients (22% of survivors) underwent TEVAR with left subclavian artery bypass from 0.4 to 22 months after index operation, due to progressive dilatation of the downstream thoracic aorta (≥ 40mm). All completion procedures were uneventful, and induced complete false lumen thrombosis at stent graft level in all patients. Unexpectedly, many patients experienced spontaneous false lumen thrombosis at thoracic level after Zone 2 arch repair only, and did not require second stage endovascular completion for dilatation yet.

Conclusions

Preliminary results of the Zone 2 arch principle showed no increased perioperative surgical risk. In case of downstream dilatation at follow-up, the Zone 2 arch enabled safe endovascular completion of the descending thoracic aorta.

FIGURE



13.58 uur

COMPUTED TOMOGRAPHY FOLLOW-UP AFTER ELECTIVE PROXIMAL AORTIC SURGERY, IS IT REALLY NECESSARY?

D.J. de Oliveira Marreiros, A. Tomšič, J.F. Hamming, J. Hjortnaes, A.J.H.A. Scholte, R.J.M. Klautz, T.J. van Brakel.

Leiden University Medical Centre, Leiden.

Purpose

The added value of computed tomography (CT) follow-up after elective proximal aortic surgery is unclear. We sought to evaluate the benefit of CT follow-up by assessing the incidence of aortic complications and reinterventions detected during routine CT follow-up.

Methods

Data on 346 patients undergoing first time elective proximal aortic surgery (root±valve replacement, ascending or hemi-arch replacement) between 2000 and 2015 were collected and followed until October 2020. The primary study endpoints were aortic complications and reinterventions, detected during routine CT follow-up. Secondary study endpoints included: aorta-related reinterventions detected during structured echocardiography follow-up or clinical presentation, and mortality.

Results

Median follow-up time was 7.2 years (IQR 4.6-10.1). A total of 1492 routine follow-up CT-scans (mean 4.3 ± 2.2 per patient) were performed. Aorta-related complications were observed in 51 (14.7%) patients of which 35 (10.1%) underwent a reintervention. The incidence of aortic complications detected during routine CT follow-up was 4.3%, corresponding to a total of 15 events of which 6 (1.7%) resulted in a reintervention (**Table 1**). The remaining reinterventions (29 patients, 8.4%) were detected during routine echocardiography follow-up or by clinical presentation. On average, 249 routine follow-up CT-scans were required in order to detect 1 aortic complication resulting in reintervention.

Conclusion

Following first time elective proximal aortic surgery, aorta-related complications are common and frequently require reintervention. However, only a minority of complications are detected during structured CT follow-up. Therefore, a more liberal approach to postoperative CT follow-up could be considered in these patients to reduce the lifetime radiation burden and healthcare costs.

Table 1: Aortic complications detected during routine CT follow-up

Case	Complication	Reintervention	Survival
1. M (62)	Aneurysm	Yes (13.05 years)	Alive at follow-up
2. M (69)	Aneurysm	Yes (1.86 years)	Alive at follow-up
3. F (65)	Aneurysm	Yes (8.34 years)	Died of aortic rupture: 0.85 years after reintervention
4. F (77)	Aneurysm	No: stable focal dilatation	Alive at follow-up
5. F (78)	Aneurysm	No: unfit for surgery	Alive at follow-up
6. F (71)	Aneurysm	No: declined surgery, high risk	Died of aortic rupture: 1.26 years after first observation
7. F (77)	Aneurysm	No: unfit for surgery	Died: 7.90 years after first observation
8. F (70)	Aneurysm	No: declined surgery, high risk	Died: 3.86 years after first observation
9. M (73)	Aneurysm	No: died before reintervention	Died: 2.17 years after first observation
10. F (63)	Pseudoaneurysm	Yes (6.92 years)	Alive at follow-up
11. M (60)	Pseudoaneurysm	Yes (7.58 years)	Alive at follow-up
12. M (73)	Pseudoaneurysm	No: minor pseudoaneurysm	Died: 5.15 years after first observation
13. M (71)	Type-A dissection	Yes (3.47 years)	Alive at follow-up
14. F (76)	Type-B dissection	No: conservative treatment	Died: 4.65 years after first observation
15. M (70)	Type-B dissection	No: conservative treatment	Died: 1.22 years after first observation

14.06 uur

PROSTHETIC VALVE ENDOCARDITIS AFTER AORTIC VALVE REPLACEMENT: IS THERE A DIFFERENCE BETWEEN BIOLOGICAL AND MECHANICAL PROSTHESES?

N.M.A.J. Timmermans, K.Y. Lam, M.A. Soliman Hamad, A.H.M. van Straten
Catharina Ziekenhuis, Eindhoven

Purpose

Prosthetic valve endocarditis (PVE) is the most severe form of infective endocarditis associated with a high mortality rate. However, prior studies reporting the incidence of PVE after surgical aortic valve replacement (AVR) are scarce. Whether PVE affects biological and mechanical aortic valves to the same extent remains unknown. Our aim was to compare the incidence of reintervention because of prosthetic valve endocarditis between bioprosthetic valves and mechanical valves.

Methods

Patients undergoing isolated surgical AVR or combined AVR between January 1998 and March 2020 were analysed retrospectively. All patients who underwent a reintervention because of PVE were identified. The primary end point was the rate of explants. The event-free survival and possible variables associated with reintervention were also analyzed using Kaplan-Meier survival analysis and Cox regression analysis.

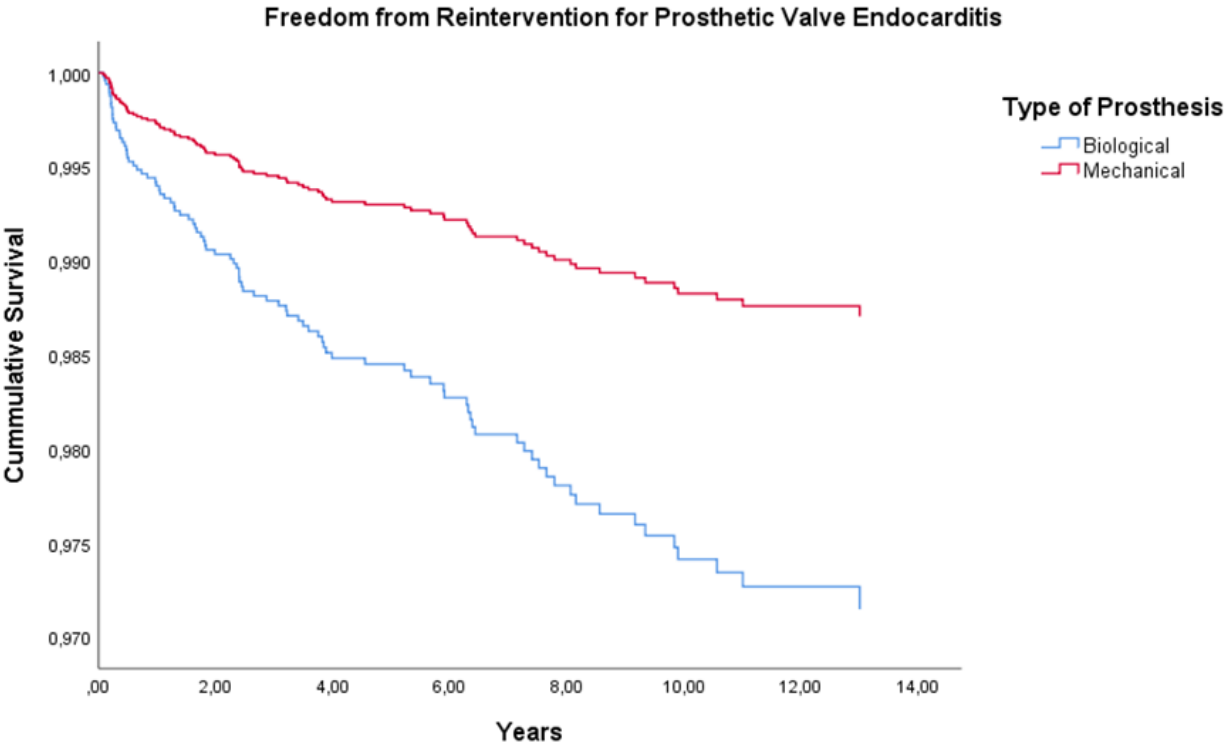
Results

During the study period, 5983 aortic valve prostheses were implanted, including 3620 (60.5%) biological valve prostheses and 2363 (39.5%) mechanical valve prostheses. The rate of reintervention for PVE in the biological prostheses group was 1.5% (n=54) compared to 1.7% (n=40) in the group of mechanical prostheses (P = 0.541). Cox regression analysis revealed that age (HR 0.959, 95% CI 0.941-0.977, P < 0.001), male sex (HR 2.193, 95% CI 1.304-3.689, P = 0.003), creatinine (HR 1.002, 95% CI 1.000-1.004, P = 0.074 and biological valve prosthesis (HR 2.220, 95% CI 1.346-3.662, P = 0.002) were associated with lower event-free survival.

Conclusion

According to this single-center experience, patients undergoing AVR with the use of biological prosthesis are more likely to have reintervention for PVE compared to mechanical prostheses. Further investigations are needed to verify our findings.

Figure 1. Freedom from Reintervention for Prosthetic Valve Endocarditis



14.14 uur

LOBECTOMY AS PART OF MULTIMODALITY APPROACH IN STAGE III N2 NON-SMALL CELL LUNG CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS

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¹Dept. of Cardiothoracic Surgery, Erasmus MC, Rotterdam; ²Dept. of Pulmonary Medicine, Erasmus MC Cancer Institute, Rotterdam

Purpose

Stage III N2 Non-Small Cell Lung Carcinoma is a complex, heterogeneous disease group containing unexpected N2 nodes, bulky and multi-level N2 nodes, and clinically suspected (cN2) disease. The latter group is often treated with chemoradiotherapy (CRT). The aim of this study is to show whether there is a benefit of the addition of surgery to the multimodality approach in stage III N2 NSCLC.

Methods

A systematic search was conducted on multiple databases. Randomized studies and retrospective studies focusing on neoadjuvant treatment consisting of concurrent chemoradiotherapy followed by surgery (CRTS) compared with chemoradiotherapy followed by radiotherapy, chemotherapy, or a combination of both (CRT) were selected. Treatment specific data of overall survival (OS) and progression-free survival (PFS) were pooled for analysis.

Results

The search yielded 5678 articles, of which 256 were included in full-text screening, and 4 were eligible for this study. Meta-analysis showed that CRTS has superior OS compared to CRT (HR 1.37; 95% CI 1.07-1.76; $I^2=50\%$). Post hoc analysis showed no difference in OS for the first year of follow-up, while the long-term OS was better in the CRTS arm. CRT followed by lobectomy had a better OS than definitive CRT in the subgroup analysis (HR 1.62; 95% CI 1.24-2.10; $I^2=5\%$). Pneumonectomy showed no additional benefit (HR 0.90; 95% CI 0.64-1.27; $I^2=23\%$).

Conclusion

CRT followed by surgery, especially lobectomy, is associated with a superior OS compared to definitive CRT in patients with clinical N2 NSCLC. Multimodality treatment teams with the patients deliberation should consider tumor resection (i.e. lobectomy) for selected cases of N2 disease.

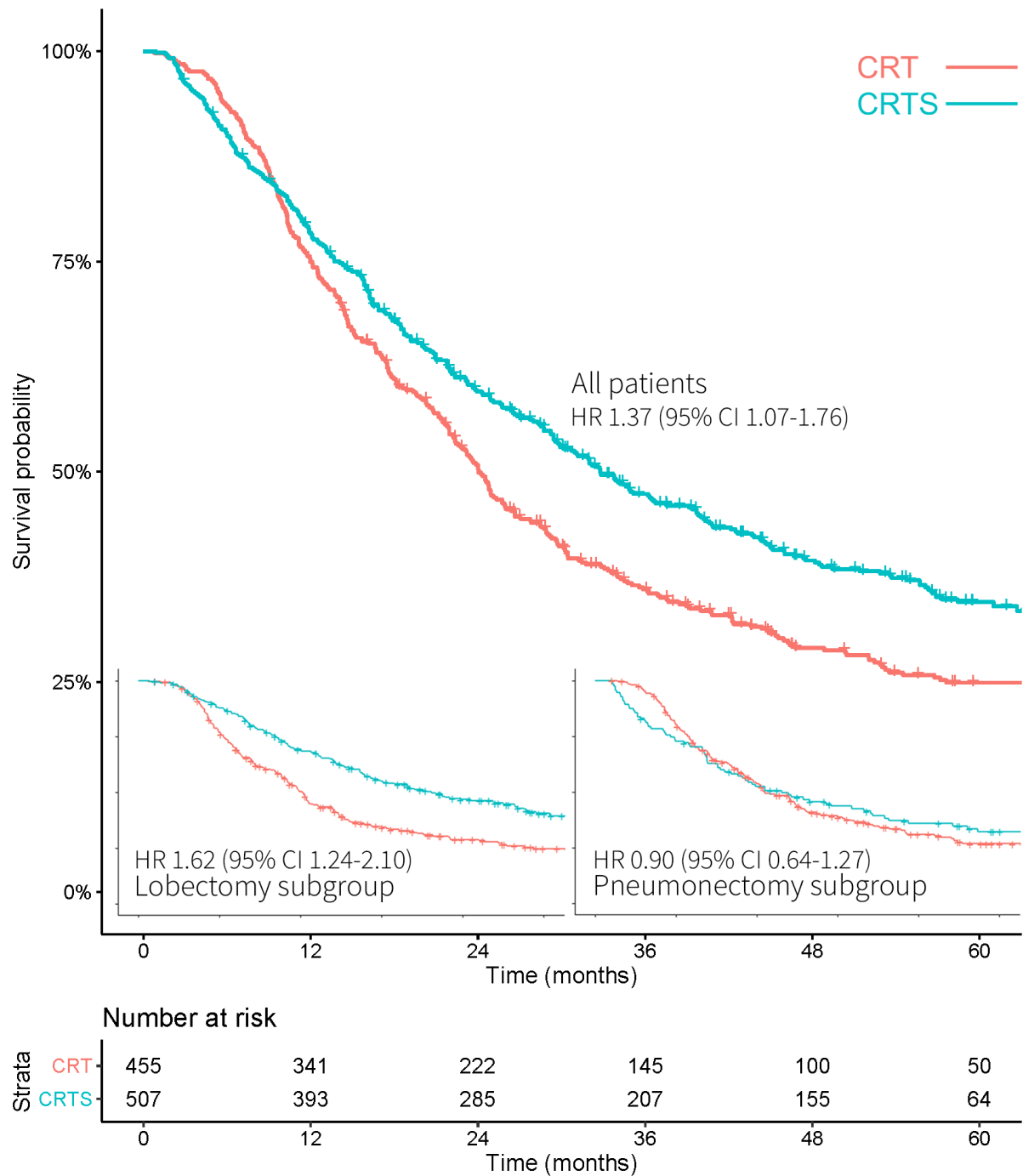


Figure: Overall Survival after chemoradiotherapy versus chemoradiotherapy and surgery in N2 Non-Small Cell Lung Carcinoma

14.22 uur

EFFECTIVENESS OF A NOVEL NHS-POX BASED SEALANT: A COMPARATIVE STUDY IN AN EX-VIVO PORCINE LUNG MODEL

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¹Department of Cardio-thoracic surgery, Radboudumc, Nijmegen; ²Department of General surgery, Radboudumc, Nijmegen

Purpose

Prolonged pulmonary air leakage (pPAL) is a frequent complication for patients undergoing pulmonary resections (incidence 8.7%). A novel sealant based on NHS-POx polymers (GATT-Patch) may be promising for prevention of postoperative PAL. In this study, we compared aerostatic properties of the GATT-Patch to four commonly used sealants in an ex-vivo setup.

Methods

Freshly harvested porcine caudal lobes were selectively intubated. PAL was assessed in three settings using increasing ventilatory pressures: 1. baseline measurement 2. after creation of a 25x25mm superficial defect, and 3. after sealant application (GATT-Patch Single and Double layer, Progel, Coseal, Hemopatch and TachoSil, all n=10). Lungs floated on saline (37°C) and were filmed from below for visual PAL assessment (Video 1). Pressure and flow signals were collected from the ventilator. Bursting pressure (BP) was defined as plateau ventilatory pressure (Pplat) at first leakage. PAL was calculated as "inspiratory - expiratory tidal volume". Baseline PAL was subtracted from leak and sealed measurements. PAL reduction (Pplat=40 cmH₂O) was calculated as "100% x ((Defect – Sealed leak)/Defect leak)" and capped at 0 and 100%. PAL reduction was noted as 100% if BP>40 cmH₂O.

Results

Every study set-up showed similar baseline PAL (Pplat=40 cmH₂O: 0.9±0.9 L/min, P=0.822). GATT-Patch Double layer showed superior BP compared to all control products (P<0.05) and superior PAL reduction compared to Hemopatch (P=0.010) and TachoSil (P=0.001). GATT-Patch Single layer showed superior PAL reduction compared to TachoSil (P=0.022) (figure 1).

Conclusion

GATT-Patch showed superior aerostatic properties compared to currently used products and holds promise for further in-vivo analysis.

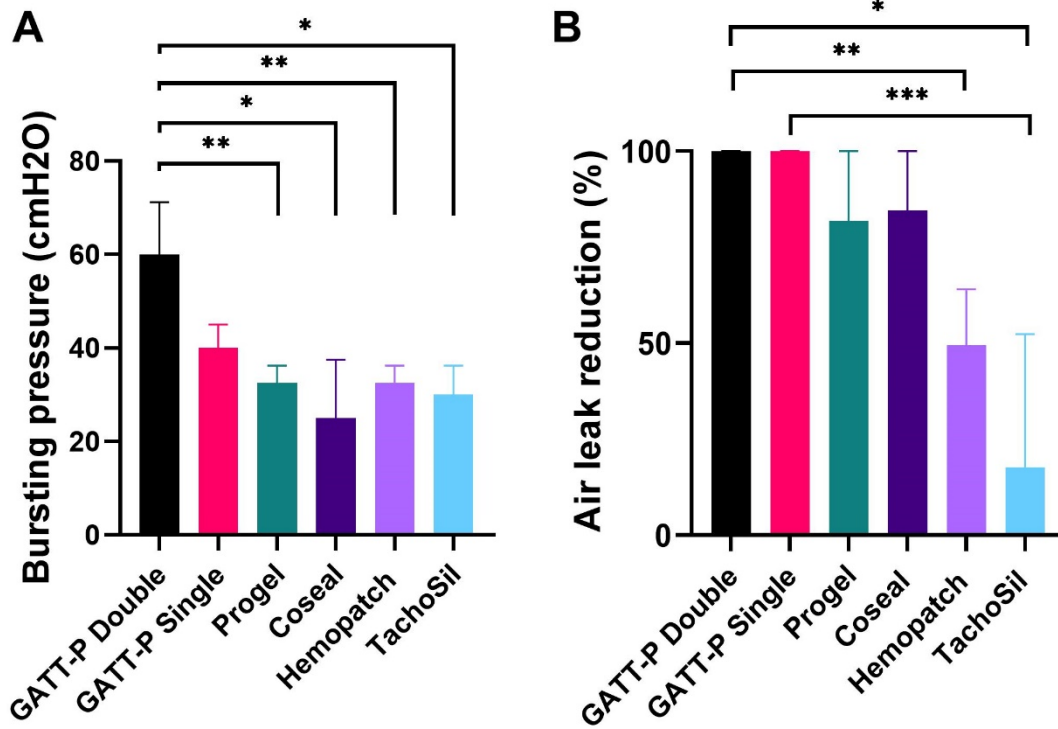


Figure 1: A) Plateau ventilatory pressures (Pplat) of each sealant at which first leakage occurred (bursting pressure).

B) Percentual air leak reduction of each sealant at Pplat of 40 cmH₂O, capped at 0 and 100%.

*=P≤0.001, **=p≤0.01 ***=p≤0.05

Graphs presented as median±IQR.

All other pairwise comparisons were not statistically significantly different.