BOLETIM CIENTÍFICO SBCCV

05 2018

J Am Coll Cardiol 2018 nov 1. doi: 10.1016/j.jacc.2018.11.001

Seguimento Estendido do Estudo FREEDOM confirma Redução de Mortalidade e Demais Desfechos, com a Cirurgia de Revascularização Miocárdica em Comparação a Angioplastia

Long-term Survival following Multivessel Revascularization in Patients with Diabetes (FREEDOM Follow-On Study)

BACKGROUND

The FREEDOM trial demonstrated that for patients with diabetes mellitus (DM) and multivessel coronary disease (MVD), coronary artery bypass grafting (CABG) is superior to percutaneous coronary intervention with drug-eluting stents (PCI-DES) in reducing the rate of major adverse cardiovascular and cerebrovascular events after a median follow-up of 3.8 years. It is not known, however, whether CABG confers a survival benefit after an extended follow-up period.

OBJECTIVE

To evaluate the long-term survival of DM patients with MVD undergoing coronary revascularization in the FREEDOM trial.

METHODS

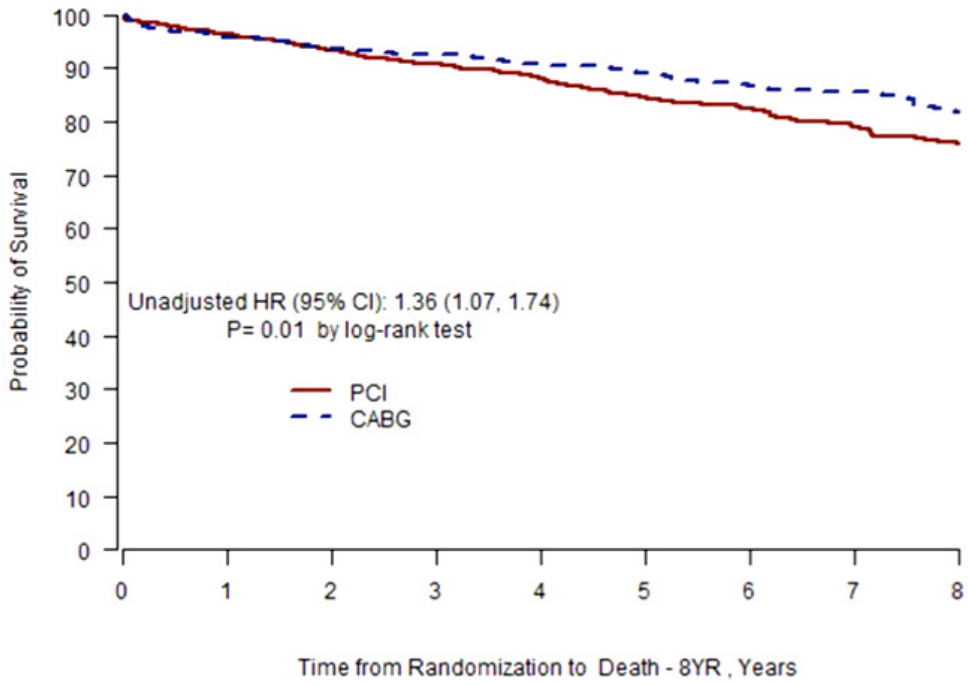
The FREEDOM trial randomized 1,900 patients with DM and MVD to undergo either PCI with sirolimus or paclitaxel eluting stents or CABG on a background of optimal medical therapy. After completion of the trial, enrolling centers and patients were invited to participate in the FREEDOM Follow-On study. Survival was evaluated using Kaplan-Meier analysis, and Cox proportional hazards models were used for subgroup and multivariate analyses.

RESULTS

Twenty-five centers (out of 140 original centers) agreed to participate in the FREEDOM Follow-On study and contributed a total of 943 patients (49.6% of the original cohort) with a median follow-up of 7.5 years (range, 0 to 13.2). Of the 1,900 patients, there were 314 deaths during the entire follow-up period (204 deaths in the original trial and 110 deaths in the FREEDOM Follow-On). The all-cause mortality rate was significantly higher in the PCI-DES group than in the CABG group (24.3% [159 deaths] vs. 18.3% [112 deaths]; hazard ratio[HR], 1.36; 95% confidence interval[CI], 1.07 to 1.74; P=0.01). Of the 943 patients with extended follow-up, all-cause mortality rate was 23.7% (99 deaths) in the PCI-DES group and 18.7% (72 deaths) in the CABG group (HR, 1.32; 95%CI, 0.97 to 1.78; P=0.076).

CONCLUSIONS

In patients with DM and MVD, coronary revascularization with CABG leads to lower all-cause mortality than with PCI-DES in long-term follow-up.



Fechamento "Profilático" do Apêndice Atrial Esquerdo, durante Cirurgia Cardíaca com CEC, Reduz Risco Tardio de Morte e AVC, Sugere Registro Americano

Association of Surgical Left Atrial Appendage Occlusion With Subsequent Stroke and Mortality Among Patients Undergoing Cardiac Surgery

IMPORTANCE

Surgical occlusion of the left atrial appendage (LAAO) may be performed during concurrent cardiac surgery. However, few data exist on the association of LAAO with long-term risk of stroke, and some evidence suggests that this procedure may be associated with subsequent development of atrial fibrillation (AF).

OBJECTIVE

To evaluate the association of surgical LAAO performed during cardiac surgery with risk of stroke, mortality, and development of subsequent AF.

DESIGN, SETTING, AND PARTICIPANTS

Retrospective cohort study using a large US administrative database that contains data from adult patients (≥18 years) with private insurance or Medicare Advantage who underwent coronary artery bypass graft (CABG) or valve surgerybetween January 1, 2009, and March 30, 2017, with final follow-up on March 31, 2017. One-to-one propensity score matching was used to balance patients on 76 dimensions to compare those with vs without LAAO, stratified by history of prior AF at the time of surgery.

EXPOSURES

Surgical LAAO vs no surgical LAAO during cardiac surgery.

MAIN OUTCOMES AND MEASURES

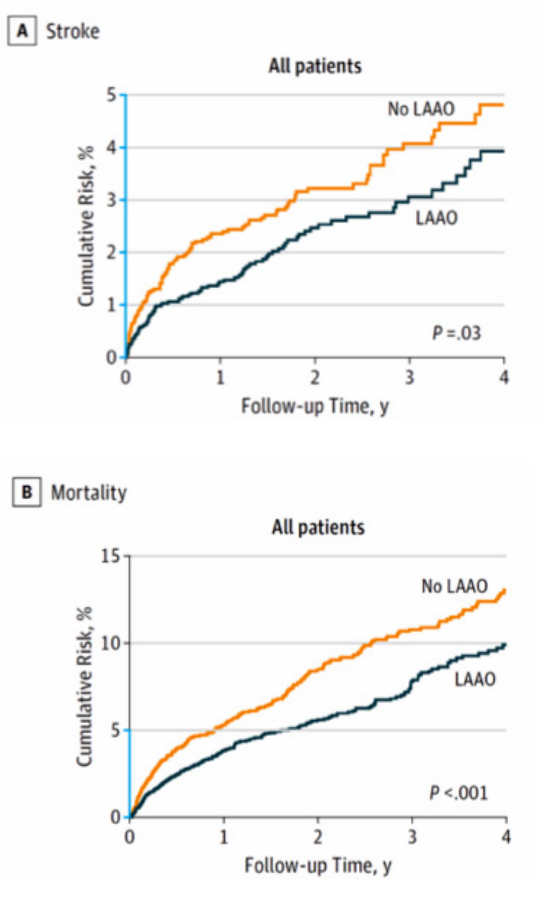
The primary outcomes were stroke (ie, ischemic stroke or systemic embolism) and all-cause mortality. The secondary outcomes were postoperative AF (AF within 30 days after surgery among patients without prior AF) and long-term AF-related health utilization (event rates of outpatient visits and hospitalizations).

RESULTS

Among 75 782 patients who underwent cardiac surgery (mean age, 66.0 [SD, 11.2] years; 2 2091 [29.2%] women, 25 721 [33.9%] with preexisting AF), 4374 (5.8%) underwent concurrent LAAO, and mean follow-up was 2.1 (SD, 1.9) years. In the 8590 propensity score-matched patients, LAAO was associated with a reduced risk of stroke (1.14 vs 1.59 events per 100 person-years; hazard ratio [HR], 0.73 [95% CI, 0.56-0.96]; P = .03) and mortality (3.01 vs 4.30 events per 100 person-years; HR, 0.71 [95% CI, 0.60-0.84]; P < .001). LAAO was associated with higher rates of AF-related outpatient visits (11.96 vs 10.26 events per person-year; absolute difference, 1.70 [95% CI, 1.60-1.80] events per person-year; rate ratio, 1.17 [95% CI, 1.10-1.24]; P < .001) and hospitalizations (0.36 vs 0.32 event per person-year; absolute difference, 0.04 [95% CI, 0.02-0.06] event per person-year; rate ratio, 1.13 [95% CI, 1.05-1.21]; P = .002). In patients with prior AF (6438/8590 [74.9%]) with vs without LAAO, risk of stroke was 1.11 vs 1.71 events per 100 person-years (HR, 0.68 [95% CI, 0.50-0.92]; P = .01) and risk of mortality was 3.22 vs 4.93 events per 100 person-years (HR, 0.67 [95% CI, 0.56-0.80]; P < .001), respectively. In patientswithout prior AF (2152/8590 [25.1%]) with vs without LAAO, risk of stroke was 1.23 vs 1.26 events per 100 person-years (HR, 0.95 [95% CI, 0.54-1.68]), risk of mortality was 2.30 vs 2.49 events per 100 person-years (HR, 0.92 [95% CI, 0.61-1.37]), and risk of postoperative AF was 27.7% vs 20.2% events per 100 person-years (HR, 1.46 [95% CI, 1.22-1.73]; P < .001). The interaction term between prior AF and LAAO was not significant (P = .29 for stroke and P = .16 for mortality).

CONCLUSIONS AND RELEVANCE

Among patients undergoing cardiac surgery, concurrent surgical LAAO, compared with no surgicalLAAO, was associated with reduced risk of subsequent stroke and all-cause mortality. Further research, including from randomized clinical trials, is needed to more definitively determine the role of surgical LAAO.



Existe Diferença nos Resultados da Troca Valvar Aórtica, em Relação ao Tipo de Incisão e Abordagem Cirúrgica?

Full Sternotomy, Hemisternotomy, and Minithoracotomy for Aortic Valve Surgery: Is There a Difference?

BACKGROUND

This study compared perioperative results and mortality rates of different approaches to perform aortic valve replacement (AVR), describing predictors favoring one approach over the others.

METHODS

All patients who underwent AVR were enrolled. The choice of the approach was left to surgeon's preference. Data were retrospectively collected, and the major baseline characteristics (including age, sex, body mass index, creatinine clearance, preoperative condition, cardiovascular risk factors, functional status, and left ventricular ejection fraction, etc.) and intraoperative variables were recorded. To adjust for differences in baseline characteristics between the study groups, a propensity score matching was performed. Linear and logistic regression analyses were performed.

RESULTS

Partial upper hemisternotomy was performed in 820 patients (43%), right anterior minithoracotomy in 488 (26%), and median sternotomy in 599 (31%). After propensity score matching, three groups of 377 patients were obtained. Cardiopulmonary bypass and cross-clamp times were shorter in the right anterior minithoracotomy group than in the median sternotomy and partial upper hemisternotomy groups (P<0.001). No significant differences in in-hospital mortality were observed (P=0.9). Renal failure (odds ratio, 5.4; 95% confidence interval, 2.3 to 11.4; P<0.0001), extracardiac arteriopathy (odds ratio, 2.9; 95% confidence interval, 1.1 to 6.7; P=0.017), and left ventricular ejection fraction (odds ratio, 0.96; 95% confidence interval, 0.93 to 0.99; P=0.009) emerged as independent predictors of in-hospital mortality.

CONCLUSIONS

Minimal-access isolated aortic valve surgery is a reproducible, safe, and effective procedure with similar outcomes and operating times compared with conventional sternotomy.

Table 3. Outcome in the Matched Cohorts

Variable[a]	Upper Hemisternotomy (n = 377)	Right Minithoracotomy (n = 377)	Full Sternotomy (n = 377)	*p* Value
Primary outcome				
In-hospital death	2.1	1.9	2.1	0.957
Secondary outcomes				
Intubation time, minutes	7 (5–10)	7 (5–12)	7 (5–12)	0.469
Surgical revision for bleeding	1.9	4.5	2.1	0.054
Red blood cell transfusion	53	49	51	0.546
ICU length of stay, hours	45 (38–49)	45 (39–64)	45 (38–48)	0.104
Pneumonia	1.3	1.1	0.8	0.777
Hemodialysis	0.5	1.6	1.3	0.364
Wound infection	0.8	0.3	2.4	0.017
Stroke	0.8	1.3	0.8	0.693
Delirium	3.2	0.8	2.1	0.067
Tamponade	2.9	1.9	2.7	0.621
Endocarditis	0.3	0	0.3	0.606
ARDS	0.8	0.3	0	0.173
Postoperative AF	27	33	26	0.081

Estudo de Mundo Real Compara Resultados da Troca Valvar Aórtica Minimamente Invasiva com o Implante Transcateter de Válvula Aórtica Transapical e Transfemoral

Minimally Invasive versus Transapical versus Transfemoral Aortic Valve Implantation: A One-To-One-To-One Propensity Score-Matched Analysis

OBJECTIVES

Although transcatheter aortic valve implantation was the treatment of choice in inoperable and high-risk patients, the effect of transcatheter aortic valve implantation relative to conventional aortic valve replacement via ministernotomy in patients with moderate surgical risk remains unclear.

METHODS

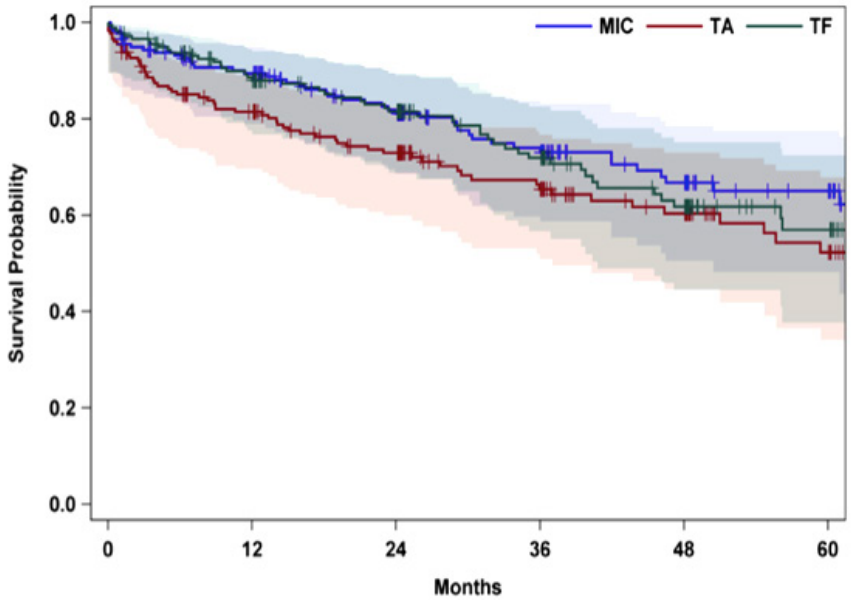
We consecutively enrolled patients who underwent minimally invasive aortic valve replacements via ministernotomy (n = 1929), transapical (n = 607), and transfemoral (n = 1273) aortic valve implantations from a single center during the period from july 2009 to July 2017. Of those, we conducted a 1:1:1 propensity score matching according to 23 preoperative risk factors.

RESULTS

We were able to find 177 triplets (n = 531). The median European System for Cardiac Operative Risk Evaluation II was 3.0% versus 3.4% versus 2.9%, and Society of Thoracic Surgeons Predicted Risk of Mortality was 3.2% versus 3.6% versus 3.4%, respectively. According to the Valve Academic Research Consortium 2 criteria, there were no significant periprocedural differences regarding 30-day mortality (2.3% minimally invasive aortic valve replacement vs 4.5% transapical transcatheter aortic valve implantation vs1.7% transfemoraltranscatheter aortic valve implantation, P = .34), stroke (1.1% minimally invasive aortic valve replacement vs 0.6% transapical transcatheter aortic valve implantation vs1.7% transfemoral transcatheter aortic valve implantation, P= .84), or myocardial infarction (0.6% minimallyinvasive aortic valve replacement vs 0.0% transapical transcatheter aortic valve implantation vs0.0% transfemoral transcatheter aortic valveimplantation, P = .83). Both intensive care and hospitalization times were significantly longer in the transapical group. Regarding midterm survival, transapical transcatheter aortic valve implantation was associated with a tendency toward a less favorable outcome (hazard ratio, 1.48; 95% confidence interval, 0.95-2.31; P=.17) compared with minimally invasive aortic valve replacement.

CONCLUSIONS

In this real-world propensity score-matched minimally invasive aortic valve replacement, transapical transcatheter aorticvalve implantation, transfemoral transcatheter aortic valve implantation cohort of intermediate-risk patients, early mortality was not significantly different, whereas the rates of periprocedural complications were different depending on the approach. During follow-up, there was a tendency in the transapical transcatheter aortic valve implantation group toward a less favorable survival outcome, although there was no significant difference among the 3 groups.



Central Message

There was no significant difference in early mortality after MIC-AVR, TF-TAVI, and TA-TAVI in this PS analysis. The rates and types of early complications were different, depending on the method.

Perspective

There was no significant difference in mortality or major adverse cardiac and cerebrovascular event among the MIC-AVR, TA-TAVI, and TF-TAVI groups with intermediate risk. Although TAVI is not limited to inoperable patients, our data suggest that we have to carefully choose the most appropriate approach for each individual patient to achieve optimal results.

Comparação de Desfechos Tardios em Pacientes com Estenose Aórtica Assintomática, Submetidos ou não a Cirurgia de Troca Varvar

Outcomes of Patients With Asymptomatic Aortic Stenosis Followed Up in Heart Valve Clincs

IMPORTANCE

The natural history and the managemen of patients with asymptomatic aortic stenosis (AS) have not been fully examined in the current era.

OBJECTIVE

To determine the clinical outcomes of patients with asymptomatic AS using data from the Heart Valve Clinic International Database.

DESIGN, SETTING, AND PARTICIPANTS

This registry was assembled by merging data from prospectively gathered institutional databases from 10 heart valve clinics in Europe, Canada, and the United States. Asymptomatic patients with an aortic valve area of 1.5 cm2 or less and preserved left ventricular ejection fraction (LVEF) greater than 50% at entry were considered for the present analysis. Data were collected from January 2001 to December 2014, and data were analyzed from January 2017 to July 2018.

MAIN OUTCOMES AND MEASURES

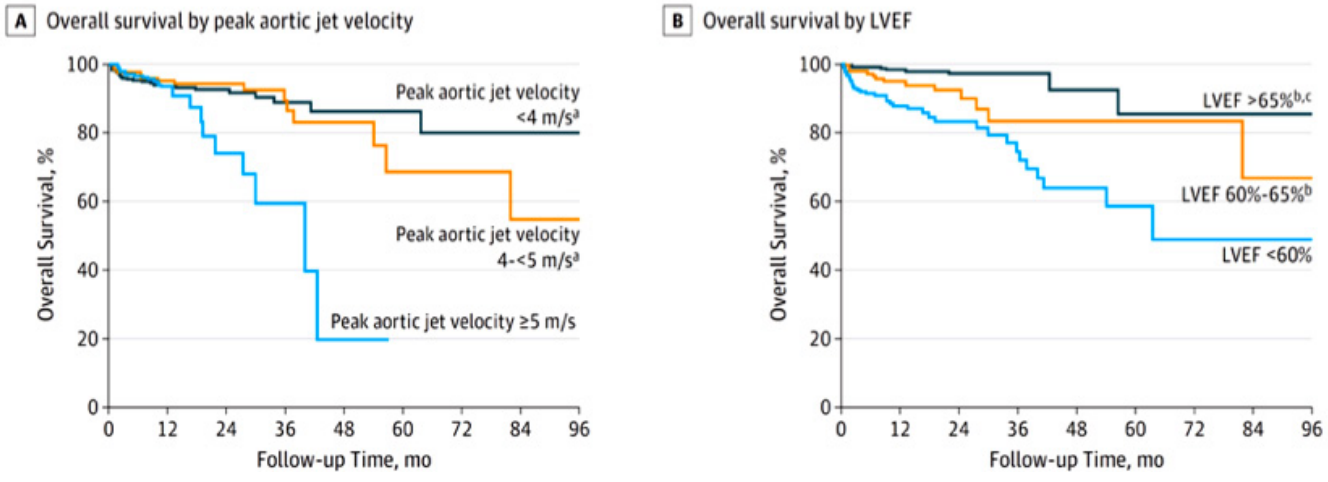
Natural history, need for aortic valve replacement (AVR), and survival of asymptomatic patients with moderate or severe AS at entry followed up in a heart valve clinic. Indications for AVR were based on current guideline recommendations.

RESULTS

Of the 1375 patients included in this analysis, 834 (60.7%) were male, and the mean (SD) age was 71 (13) years. A total of 861 patients (62.6%) had severe AS (aortic valve area less than 1.0 cm2). The mean (SD) overall survival during medical management (mean [SD] follow up, 27 [24] months) was 93% (1%), 86% (2%), and 75% (4%) at 2, 4, and 8 years, respectively. A total of 104 patients (7.6%) died under observation, including 57 patients (54.8%) from cardiovascular causes. The crude rate of sudden death was 0.65% over the duration of the study. A total of 542 patients (39.4%) underwent AVR, including 388 patients (71.6%) with severe AS at study entry and 154 (28.4%) with moderate AS at entry who progressed to severe AS. Those with severe AS at entry who underwent AVR did so at a mean (SD) of 14.4 (16.6) months and a median of 8.7 months. The mean (SD) 2-year and 4-year AVR-free survival rates for asymptomatic patients with severe AS at baseline were 54% (2%) and 32% (3%), respectively. In those undergoing AVR, the 30-day postprocedural mortality was 0.9%. In patientswith severe AS at entry, peak aortic jet velocity (greater than 5 m/s) and LVEF (less than 60%) were associated with all-cause and cardiovascular mortality without AVR; these factors were also associated with postprocedural mortality in those patients with severe AS at baseline who underwent AVR (surgical AVR in 310 patients; transcatheter AVR in 78 patients).

CONCLUSIONS AND RELEVANCE

In patients with asymptomatic AS followed up in heart valve centers, the risk of sudden death is low, and rates of overall survival are similar to those reported from previous series. Patients with severe AS at baseline and peak aortic jet velocity of 5.0 m/s or greater or LVEF less than 60% have increased risks of all-cause and cardiovascular mortality even after AVR. The potential benefit of early intervention should be considered in these high-risk patients.



Avaliação do uso Pré-Operatório da Oxigenação Extracorpórea Venoarterial Por Membrana (Venoarterial Extracorporeal Membrane Oxygenation - ECMO), em Pacientes com Choque Cardiogênico ou Falência Ventricular Grave

Preoperative Venoarterial Extracorporeal Membrane Oxygenation Slashes Risk Score in Advanced Structural Heart Disease

BACKGROUND

Cardiac surgery for structural heart disease has poor outcomes in the presence of cardiogenic shock or advanced heartfailure. we applied venoarterial extracorporeal membrane oxygenation (ECMO) to restore end-organ function and resuscitate patients before high-risk cardiac operation.

METHODS

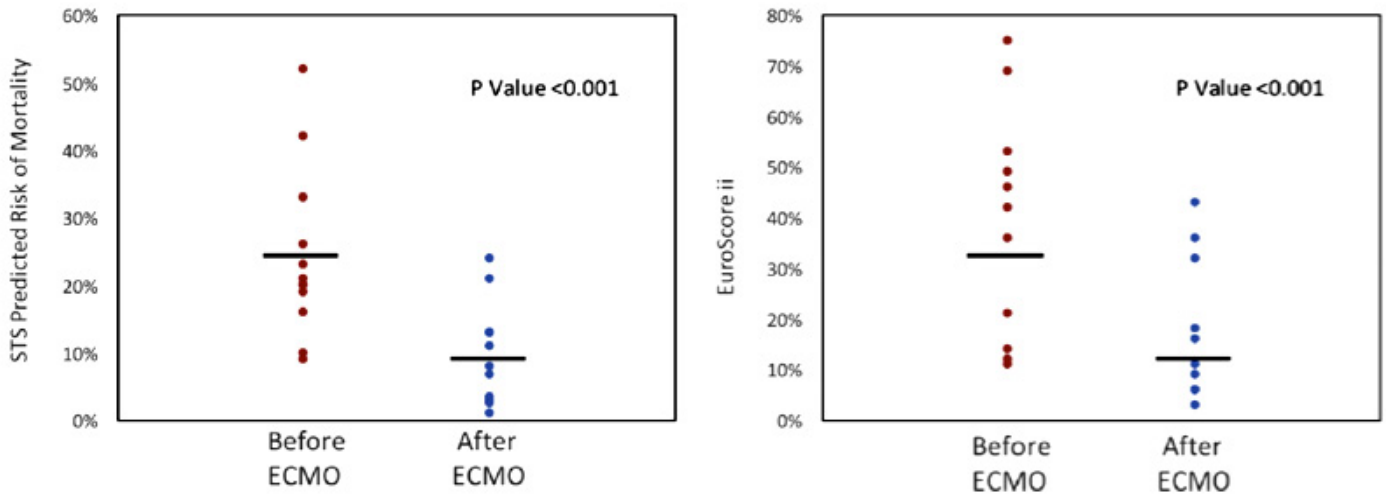
Twelve patients with cardiogenic shock and end-organ failure were evaluated for cardiac surgery. The average Society of Thoracic Surgeons mortality risk was 24% ± 13%. Patients were peripherally cannulated on ECMO for 7 ± 4 days, before undergoing operation for prosthetic mitral stenosis (n = 4), ruptured papillary muscle (n = 4), ischemic ventricular septal defect (n = 3), or severe aortic stenosis (n = 1).

RESULTS

Mean age was 61 ± 8 years. Comorbidities included acute renal failure (n = 11), inotrope requirement (n = 10), intraaortic balloon pump (n = 8), severe acidosis (n = 6), high-dose vasopressor requirement (n = 8), and cardiac arrest (n = 1). With ECMO support, vasopressor requirement, central venous pressure, creatinine, lactate, pH, pulmonary hypertension, and The Society of Thoracic Surgeons mortality risk and EuroSCORE (European System for Cardiac Operative Risk Evaluation) II all improved significantly. Care was withdrawn in 1 patient on ECMO with initially unknown anoxic brain injury. No patients required dialysis at discharge. Complications included 1 permanent stroke. All operative patients survived to hospital discharge. Average length of follow-up was 420 days, with 2 patient deaths at 76 and 230 days and 6 patients surviving over 1 year.

CONCLUSIONS

ECMO can be used as a bridge to heart valve or septal defect surgery in severely decompensated patients. Through recovery of end-organ function, ECMO may allow surgical correction of structural heart disease in patients considered inoperable or convert a salvage situation to an elective operation.



Variação na Terapia Antitrombótica Pré-Operatória E Sangramento Grave no PO de Revascularização Miocárdica: Insights do E-CABG Registry

Variation in Preoperative Antithrombotic Strategy, Severe Bleeding, and use of Blood Products in Coronary Artery Bypass Grafting: Results from the Multicentre E-CABG Registry

AIMS

No data exists on inter-institutional differences in terms of adherence to international guidelines regarding the discontinuation of antithrombotics and rates of severe bleeding in coronary artery bypass grafting (CABG).

METHODS AND RESULTS

This is an analysis of 7118 patients from the prospective multicentre European CABG (E-CABG) registry who underwent isolated CABG in 15 European centres. Preoperative pause of P2Y12 receptor antagonists shorter than that suggested by the 2017 ESC guidelines (overall 11.6%) ranged from 0.7% to 24.8% between centres (adjusted P<0.0001) and increased the rate of severe-massive bleeding [E-CABG bleeding grades 2-3, OR 1.66, 95% confidence interval (CI) 1.27-2.17; Universal Definition of Perioperative Bleeding (UDPB) bleeding grades 3-4, OR 1.50, 95% CI 1.16-1.93]. The incidence of resternotomy for bleeding (overall 2.6%) ranged from 0% to 6.9% (adjusted P<0.0001), and surgical site bleeding (overall 59.6%) ranged from 0% to 84.6% (adjusted P=0.003). The rate of the UDPB bleeding grades 3-4 (overall 8.4%) ranged from 3.7% to 22.3% (P<0.0001), and of the E-CABG bleeding grades 2-3 (overall 6.5%) ranged from 0.4% to 16.4% between centres (P<0.0001). Resternotomy for bleeding (adjusted OR 5.04, 95% CI 2.85-8.92), UDPB bleedinggrades 3-4 (adjusted OR 6.61, 95% CI 4.42-9.88), and E-CABG bleeding grades 2-3 (adjusted OR 8.71, 95% CI 5.76-13.15) were associated with an increased risk of hospital/30-day mortality.

CONCLUSIONS

Adherence to the current guidelines on the early discontinuation of P2Y12 receptor antagonists is of utmost importance to reduce excessive bleeding and early mortality after CABG. Inter-institutional variation should be considered for a correct interpretation of the results in multicentre studies evaluating perioperative bleeding and use of blood products.

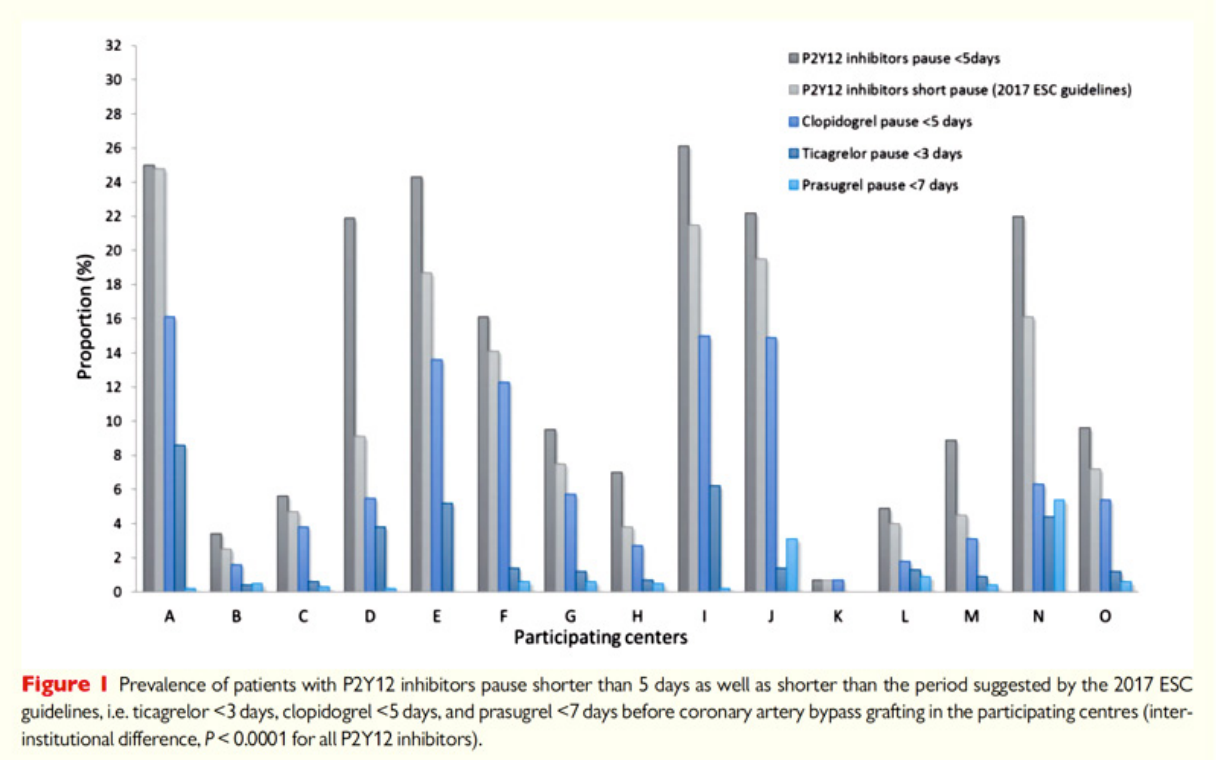


Figure 1 Prevalence of patients with P2Y12 inhibitors pause shorter than 5 days as well as shorter than the period suggested by the 2017 ESC guidelines, i.e. ticagrelor <3 days, clopidogrel <5 days, and prasugrel <7 days before coronary artery bypass grafting in the participating centres (inter-institutional difference, $P < 0.0001$ for all P2Y12 inhibitors).

Piores Desfechos com o uso de Rivaroxaban Após Implante Transcatater De Válvula Aórtica, Interrompe Precocemente Estudo GALILEO

Greater Risks With Post-TAVR Rivaroxaban Halt GALILEO Trial

The phase 3 GALILEO trial has been terminated early after a preliminary analysis showed that rivaroxaban (Xarelto; Bayer/Janssen) was associated with an increase in all-cause death, thromboembolic events, and bleeding when given following successful transcatheter aortic valve replacement (TAVR).

The trial's data safety monitoring board recommended stopping the trial in August after the analysis showed that patients treated with rivaroxaban vs an antiplatelet therapy had higher rates of the primary efficacy outcome of death or first adjudicated thromboembolic event (11.4% vs 8.8%), as well as the primary safety outcome of primary bleeding (4.2% vs 2.4%). All-cause death rates were also higher with rivaroxaban (6.8% vs 3.3%).

The results were disclosed in an October 3 "Dear Healthcare Professional" letter from Bayer, sent "in agreement with European Medicines Agency and the Health Products Regulatory Authority (HPRA)."

"These results are preliminary and based on incomplete data collection," the letter notes. "The final study data will be assessed by regulatory authorities as soon as they are available, including an assessment of any implications for approved indications."

Rivaroxaban is not approved for thromboprophylaxis in patients with prosthetic heart valves, including patients who have undergone TAVR, the letter adds, "and should not be used in such patients. Rivaroxaban treatment should be stopped in patients who undergo TAVR and switched to standard of care."

The blockbuster clot-prevention drug has been the subject of more than 20,000 lawsuits in federal and state courts alleging injuries with rivaroxaban. As reported earlier this year, a Pennsylvania state court overturned a $28 million verdict against Bayer AG and Johnson & Johnson's Janssen Pharmaceuticals unit, which jointly developed the drug.

The global GALILEO trial started in December 2015 and sought to compare a rivaroxaban-based antithrombotic strategy (rivaroxaban 10 mg once daily plus aspirin 75-100 mg once daily for the first 90 days followed by rivaroxaban alone) to an antiplatelet-based strategy (aspirin 75-100 mg once daily plus clopidogrel 75 mg once daily for the first 90 days followed by aspirin alone) after successful native or valve-in-valve TAVR.

The open-label trial had enrolled 1644 participants at 139 sites and was estimated to be completed October 22, 2018. Patients with atrial fibrillation at randomization were excluded from this trial.

Analyses are ongoing, the company adds. Healthcare professionals are asked to report any suspected adverse reactions to HPRA Pharmacovigilance (medsafety@hpra.ie) or to Bayer.

The decision to prematurely halt GALILEO will likely affect the ongoing GALILEO-4D trial, a substudy that uses the same randomization as the main trial with the addition of a 4D CT scan and echocardiography 90 days post randomization to evaluate which strategy is superior at preventing valve leaflet thickening and reduced leaflet motion.