SUPPLEMENT

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CARDIAC SURGERY

NURSING CARE PROTOCOL OF LEFT VENTRICULAR ASSIST DEVICE DRIVELINE EXIT-SITE

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Keywords: *Left Ventricular Assist Device, Driveline infection, Driveline exit-site, Protocol, Nursing Care*

AIM

Implantation of left ventricular assist devices is becoming more frequent with the development of mechanical circulatory support technology and the scarce number of organs available for heart transplantation, demonstrating that these devices may improve survival, functional capacity, and quality of life. However, it can cause serious complications such as driveline infection, causing significant morbidity and mortality. Nurses are uniquely positioned to improve driveline management, disrupting the chain of infection. Driveline exit-site care is crucial for the prevention of infections, although there are no gold-standard of care. Our purpose is that all patients have a uniform care to driveline exit-site, ensuring the healing process and prevention of infection.

In Portugal, experience with this device is scarce, as there is still not a significant number of implanted patients. At Centro Hospitalar e Universitário de São João, no device was implanted, but there is a patient who is followed up by the team of this hospital. As such, it became imperative to develop this protocol in order to treat this patient and implement it in future patients. In addition, it can be developed at a national level in order to standardize nursing care in this area, with all the associated health gains.

METHOD AND RESULT

Literature review to develop nursing care protocol of driveline exit-site, supported by the best evidence based scientific research in which we are able to identify all the recommendations to care of the driveline exit-site, mainly the dressing material.

This review reveals that there is no standard care for infection prevention. Despite that, a protocol of care based on prevention of infection, nursing care and comfort of the patient was developed with the dressing material adjusted to what is available in our country.

CONCLUSION

With the increasing number of patients with this device, nurses are challenged to develop interventions that aim to ensure the quality and safety of care. This protocol allows the standardization of nursing care to driveline exit-site, leading to the prevention of driveline infections through the improvement of the healing process.

AORTIC COMMISSUROPLASTY AS A BAILOUT PROCEDURE TO ACCOMMODATE A SUTURELESS BIOPROSTHESIS

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Keywords: *Aortic valve stenosis, Sutureless bioprosthesis, aortic commissuroplasty, pacemaker implantation*

INTRODUCTION

Due to the drive toward transcatheter aortic valve replacement, cardiac surgeons are continuously challenged to collect data and evidence to prove outcomes and benefits of aortic valve surgery. Sutureless bioprostheses have been proposed for replacing calcified stenotic native valves within small aortic roots of geriatric patients with significant comorbidity. Their use seems as safe as that of stented bioprostheses and enables significantly reduced length of surgery. Low transprosthetic pressure gradients have been measured. Because of the radial force of its self-expandable nitinol stent, aortic annulus interruption could be a relative contraindication to sutureless bioprostheses use. The permanent pacemaker implantation and paravalvular leak rates after sutureless aortic valve replacement vary widely.

AIMS

We report a case of a 65-year-old diagnosed with symptomatic severe aortic stenosis. The patient to submitted to aortic valve replacement through a J-upper sternotomy.

METHOD

Intraoperatively, the aortic root and proximal part of the ascending aorta were found to be heavily calcified, and the option was to replace the aortic valve with a sutureless prosthesis. After excision of the aortic valve the largest sizer of the prosthesis was found to be suitable and a Sorin Perceval Plus XL prosthesis was prepared and implanted. However, after deploying the valve it was possible to observe a gap in the commissure between the left and right coronary sinus. Therefore, it was decided to retrieve the prosthesis and close the defect with an U-stich supported with pledgeted felts in each side of the commissure (commissuroplasty). After reimplanting the sutureless valve, no residual defect was found and the aortotomy was closed. The patient was weaned from cardiopulmonary bypass with minor inotropic support. No regurgitation nor significant gradient was obtained intraoperatively by transesophageal echocardiogram. The remaining hospitalization was complicated with 3rd degree AV block with need for pacemaker implantation. The patient was discharged on the 11th post-operative day.

RESULTS & CONCLUSION

Despite the rarity of the case, we presented this case to demonstrate a set of surgical alternative approach to avoid perivalvular leak or significant gradient during implantation of sutureless bioprosthesis. The sutureless bioprosthesis was easily and successfully removed and re-implanted, although it is designed for single use only. This fact allowed reuse of the same intact prosthetic valve and there was no need for another prosthesis.

LONG-TERM FOLLOW-UP AFTER AORTIC VALVE REPLACEMENT WITH TRIFECTA: A SINGLE CENTER RETROSPECTIVE COHORT

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Keywords: *Aortic Valve Replacement, bioprostheses, St Jude´s Trifecta*

INTRODUCTION

St. Jude's Trifecta (TF) bioprostheses were adopted at most centers due to their unique design and hemodynamic performance. However, concerns regarding durability have been raised and long-term follow-up results (≥10 years) are scarce in the literature.

AIMS

To report hemodynamic performance as well as early and long-term results of TF valve.

METHOD

In this longitudinal, single-center study, consecutive patients that underwent surgical aortic valve replacement with TF, from June 2011 to June 2019, were included. Pre-, intra- and post-operative data, including routine and first outpatient ambulatory postoperative transthoracic echocardiogram (TTE) (median 4 months) were collected. Hospital mortality was defined as in-hospital or within the first 30 days after surgery. Survival and need for reoperation were accessed in December 2021. Median follow-up was 4 years and maximum was 11 years. Kaplan-Meier method was used for time-to-event outcomes (all-causes mortality and need for reoperation).

RESULTS & CONCLUSION

We included 1084 patients, 54% being male, with a mean age of 74±8 years. Surgery priority was elective in 840 (78%) of cases. Most patients received a TF prothesis of size 23 (35%), followed by size 21 (30%). There were 563 (52%) multiple procedures, mostly coronary artery bypass grafting (n= 256/563 [23,7%]). Bypass and clamping times were 86±31 minutes and 62±22 minutes, respectively for isolated procedures, and 143±27 minutes and 100±40 minutes, respectively, for multiple procedures. Hospital mortality was 6%. Excluding these patients, cumulative survival at 1-, 3-, 5- and 10-years, were, respectively, 96%, 89%, 78% and 52%. There were 27 patients who needed reoperation: 16 due to endocarditis, 5 due to structural valve deterioration (SVD) and 6 due to non-structural valve dysfunction. Freedom from reoperation at 1-, 3-, 5- and 10- years were of 99%, 98%, 98% and 95%, respectively. At follow-up TTE (n=995), transvalvular mean gradient was 11±4 mmHg and the effective orifice area mean was 2.1±0.5 cm2. Patient-prosthesis mismatch occurred in 79 (9.1%), being severe in 8 (0,9%) cases.

Our findings confirm the satisfactory hemodynamics and safety profile of TF bioprostheses. Long-term results are comparable with published TF series and there seems to be no particular sign of adverse valve-related events in our population.

ESTABLISHING AN AORTIC VALVE REPAIR PROGRAM: SINGLE-CENTER 15 YEARS EXPERIENCE AND META-ANALYSIS

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Keywords: *Aortic Valve Repair, Reoperation, Survival*

INTRODUCTION

Most evidence of aortic valve repair (AVR) comes from high-volume centers of excellence and reproducibility of these techniques in low-volume programs is uncertain.

AIMS

The main goal of this study was to systematically summarize the mid- to long-term outcomes of AVR and to compare our single-center (SC) experience results with pooled published data (PPD).

METHOD

A literature review was performed using PUBMED and ISI-Web of Knowledge databases. Studies with initial sample size above 200 patients, mean or maximum follow-up ≥ 5 or 10 years, respectively, and that reported mortality and/or reoperation outcomes were included. Pediatrics disease, endocarditis or aorta coarctation papers were excluded. Individual patient data for survival and freedom-from-reoperation was extracted from published Kaplan-Meier curves, using GetData Graph Digitizer and combined using Guyot's algorithm to pool data. These data were compared with our SC AVR series which included adult patients submitted to AVR between 2007 and 2020 followed up until December 2021. Data was collected from center retrospective databases and national registry (all-cause mortality).

A total of 1729 titles were identified, with 29 eligible for this analysis. Studies' sample size ranged between 198 and 1015, totaling 12678 patients. These patients were compared to our SC cohort (n=122). Mean age was similar (PPD:52 vs. SC:51) and the majority of patients were male (PPD:76% vs. SC:80%, p=0.32). Marfan Syndrome and aortic dissection were more prevalent in PPD than in SC (15% vs. 5% and 13% vs. 4%, respectively, p<0.01 for both). The SC patients presented more frequently bicuspid aortic valve than PPD (41% vs. 32%, p=0.03). Regarding surgical techniques, aortic valve sparing (Yacoub and David) were more used in PPD than in SC (19 vs 3% and 71 vs 13%, respectively, p<0.01 for both), while SC patients underwent aortic annuloplasty more frequently (78 vs. 11%, p<0.01). Early mortality (reported by 28 studies) occurred in 2% of patients vs. 0% (SC). The cumulative survival rates at 1-, 5-, 10-years of follow-up were 99 vs. 96%, 95 vs. 92% and 79 vs. 82% for SC and PPD, respectively (Log-rank, p=0.46). Freedom-from-reoperation rates at 1-, 5- and 10-years were 99 vs. 98%, 98 vs. 94%, 78 vs. 89%, for SC and PPD, respectively (Log-rank, p=0.45).

RESULTS & CONCLUSION

AVR is a durable and effective surgery and a viable alternative to standard replacement in a selected population. It is a safe procedure, with a low rate of acute complications, which allows to establish a program even in lower volume centers.

REACHING CONSENSUS ABOUT END-LIFE CARE FOR PATIENTS WITH VENTRICULAR ASSIST DEVICE: AN INTEGRATIVE REVIEW

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Keywords: *ventricular assist device, deactivation, interdisciplinary, end-of life*

INTRODUCTION

Ventricular assist devices (VADs) have become common and are increasingly used for patients with advanced heart failure (HF)[1, 2]. Still, many patients with VADs experience end-of-life with the device still working. This scenario is unavoidable with destination therapy and in situations of bridge-to-transplant complicated with a catastrophic event.

AIMS

The purpose of this integrative review is to systematically evaluate research studies focused in facilitating interdisciplinary preparation for VAD deactivation.

METHOD

Researching in the EBSCO Host® database (CINAHL Complete, MEDLINE Complete, Nursing & Allied Health Collection: Comprehensive, Cochrane Central Register of Controlled Trials e MedicLatina) from 2012 to 2022 with the keywords 'ventricular assist device', 'deactivation', 'withdrawal', 'device removal', 'interdisciplinary' and 'end-of-life', from which 28 articles were fully reviewed.

The ethical questions associated with the implanted cardiac-assist devices deactivation have drawn sustained attention from health care teams.[3 ,4, 5, 6, 7, 8, 9]

The International Guidelines for Mechanical Circulatory Support published in 2013, dedicates some words to advance care planning, palliative care collaboration, and the option of deactivation.[10]

The International Society of Heart and Lung Transplantation recommends that a palliative care team should be involved prior to VAD implantation to facilitate discussion of end-of-life and to establish an advanced directive. [7, 11, 12]

Medical literature also contains several surveys of various individuals' approaches regarding VAD deactivation, stating different perspectives that support an ethical debate, including the views of patients, [2, 4, 13, 14, 15] families [2, 4, 13, 16, 17] health care professionals [2, 4, 18, 19, 20, 21] and representatives of the device. [7]

Schaefer and his associates published an article in 2014 focused in building a checklist that might be helpful in facilitating interdisciplinary preparation for VAD deactivation. [22]

Priorities include effective communication with the family and among teams, imperative palliative care consultation, and coordination of interdisciplinary care at the bedside. [4, 9, 22]

RESULTS & CONCLUSION

Device deactivation remains a complex issue within the care of patients with advanced HF but it should be considered part of the process of care itself. [23]

Removing devices may be considered for pain and distress limitation purposes,[6] as well as respecting both survival and quality of life [4, 9, 24] when patients explicitly manifested their will prior to the VAD implantation.

Providers who care for patients with a VAD have acknowledged that end-of-life is an important area of concern, and they try to support their practice on a check-list with advanced directives, shared decision-making and multidisciplinary approach.

AORTIC VALVE SURGERY WITH STENTED VERSUS STENTLESS BIOPROSTHESIS IN PATIENTS WITH INFECTIVE ENDOCARDITIS

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Keywords: *Infective endocarditis, aortic valve replacement, Bioprosthesis*

INTRODUCTION

There is still no gold-standard prosthetic valve substitute for infective endocarditis.

AIMS

To compare outcomes after aortic valve replacement (AVR) with a stented (Trifecta-TF) versus a stentless bioprosthesis (Freedom Solo-FS) in patients with active or previous infective endocarditis (IE).

METHOD

Single-center, retrospective, observational and comparative study including patients with IE who underwent AVR with the TF or FS bioprosthesis between June 2009 and December 2019. Survival and re-intervention were checked in December 2021. The median follow-up time in the stentless and stented groups was 7 and 5 years, respectively. Median (minimum and maximum) and relative frequencies were used to sample characterization and comparison. Hospital mortality was defined as in-hospital death or within 30-days after AVR. Kaplan-Meier method was used for time-to-event outcomes (all-causes mortality and reoperation).

RESULTS

Eighty-two patients were included, 32.9% FS and 67.1% TF. The median age of FS patients was 64 (50-81) vs. 71 (40-87) years in the TF group (p=0.071). There were 74.5% male patients in the TF vs 67% in FS group. Most patients (83%) had active IE (FS: 78% vs TF: 86%, p=0.533) and native aortic valve IE (FS: 85% vs. TF: 66%, p=0.062). Surgical priority in FS and TF patients was urgent or emergent in 82% vs 91%, respectively (p=0.293). Abscess exclusion was done in 26% FS and 29% TF (p=0.764). Multiple procedures were done in 59% FS and 64% TF (p=0.701). Hospital mortality occurred in 7% FS and 22% TF (p=0.128). After excluding these patients, the 1-, 5- and 8-year cumulative survival rates for FS vs. TF were 92 vs. 91%, 88 vs. 77%, 78 vs. 71%, respectively (Log-rank p=0.453). There were 3 reoperations related to FS bioprosthesis (2 due to endocarditis at 2 and 9-years of follow-up and 1 due to structural valve deterioration at 7-years of follow-up); and 5 in TF (4 due to endocarditis at 1-, 3-, and 5-years (n=2) of follow-up and 1 due to nonstructural valve deterioration 6-years after AVR, corresponding to a freedom-from-reoperation of 79% vs. 83% at 10-years of follow-up, respectively (Log-rank, p=0.698).

CONCLUSION

TF bioprostheses was implanted in higher risk patients. Both groups presented high early mortality rate and long-term overall survival seems similar in stented and stentless aortic bioprosthesis. The need for reoperation was also similar and mainly due to new IE episodes in both bioprosthesis.

BICUSPID MINI-DAVID: A MODERN SOLUTION FOR AN OLD PROBLEM

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Keywords: *Minimally Invasive Cardiac Surgery, David Procedure*

INTRODUCTION

Aortic Valve-sparing techniques have long proven to be a viable and reproducible solution for select patients with aortic root enlargement and associated functioning aortic valves, even in the context of bicuspid aortic disease.

AIMS

A 50-year-old male, with prior history of uncontrolled arterial hypertension, was referenced to our center for an aortic root dilation with bicuspid aortic valve disease. Routine TTE reveal an dilated aortic root (49mm) and mild aortic regurgitation, with no outflow obstruction. On 1-year follow-up, there was evidence of a >3mm progression of aortic root dilation associated with uncontrolled arterial hypertension.

METHOD

The patient was proposed for valve-sparing aortic root replacement. Intraoperatively a Sievers Type I R-L valve (180º) was found, and a David procedure was conducted through a minimally invasive approach by 3rd right intercostal space partial sternotomy. Thepatient was extubated on the operation room, no inotropic support was needed. No complications were observed, and the patient was discharged on the 4th postoperative day.

On postoperative follow-up TTE no aortic valve regurgitation or obstruction were observed.

RESULTS AND CONCLUSION

Aortic valve-sparing techniques are increasingly adopted in day-to-day practice, and they remain a viable option in select bicuspid patients. Minimally invasive approaches do not significantly increase the technical difficulty or surgical risk of aortic valve-sparing techniques, provided they are performed by an experienced minimally invasive cardiac surgery team.

ENDOSCOPIC VEIN HARVESTING: RESULTS OF THE FIRST 100 PATIENTS

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Keywords: *CABG, EVH*

INTRODUCTION

The saphenous vein continues to be one of the most used conducts for coronary artery bypass graft surgery. Open vein harvesting implies greater incisions and are often associated with complications, such as paresthesia and infection. As concerns the latter, it follows from the available literature that open vein harvesting is associated to a high rate of infection, up to 25% in some series. Endoscopic vein harvesting is an alternative to avoid these disadvantages.

AIMS

The purpose was to assess the results of the first 100 patients, where endoscopic vein harvesting was used.

METHOD

Prospective analysis of 100 patients, who were submitted to endoscopic vein harvesting for coronary surgery, between 1 July 2020 and 31 July 2022. Patient selection for endoscopic vein harvesting depended on the surgeons' choice and on the availability of the material. The mean age of the patients was 68.4 years and 80% were male. 83% of the patients underwent isolated coronary surgery, whereas the remaining patients were submitted to multiple procedures. There were no registered technical difficulties, harvesting mean time was approximately 40 minutes and conversion rate was 2% due to hemorrhage. Follow-up was carried out within six weeks, on the date of the first post-op appointment. The infection rate was of 3%, with no need of hospital treatment.

RESULTS AND CONCLUSION

Endoscopic vein harvesting seems to be a safe, reliable and replicable method for vein harvesting. Confronting the results with those of the available literature, endoscopic vein harvesting is better as concerns infection rates.

ACUTE TYPE A AORTIC DISSECTIONS: A 16-YEAR SINGLE-CENTER CASUISTIC

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Keywords: *Acute Type A aortic Dissection, Ascending Aorta, Ascending Aorta replacement, stroke*

INTRODUCTION

Acute type A aortic dissection is a life-threatening disease that develops suddenly and requires emergency surgery. However, a number of problems remain during the postoperative course. One problem is the wide age range of the patients.

AIMS

The aim of this study was to evaluate the 16-year results of emergency operations for acute type A aortic dissection of one single center.

METHOD

We reviewed 155 patients who underwent surgical aortic repair of an acute type A aortic dissection from January 2000 to December 2016. We analyzed the early and late outcomes and in-hospital death and difficulty of direct discharge to home.

RESULTS

We collected 67%(n=104) males on our study. Mean age of group was 61,9±12,3 years, 23 of them older than 75 years. The preoperative data showed 52,9% of patients on NYHA III-IV(n=82), 7,1% with stroke(n=11), 18,7% with peripheral vascular disease(n=29), 11% with COPD(n=17), 5,8% on atrial fibrillation(n=9), 25,8%(n=40) with severe aortic regurgitation and a mean of LVEF of 52,1±8,1%. Six patients with Marfan Syndrome and 1 patient with Turner Syndrome.

One exploratory sternotomy was performed with no need for ascending Aorta replacement. During surgery, central cannulation was performed in 24,7%(n=38), 3 of them in brachiocephalic trunk, and femoral cannulation in 75,3%(n=116). Isolated ascending Aorta replacement was performed in 73,4%(n=113), associated with aortic valve replacement in 17,5%(n=27), 7 biological and 20 mechanical prosthesis. We performed 11 Bentall-De Bono procedures(7,1%) and 14 aortic valve repair(11,1%). Combined with Aorto-coronary bypass 19 patients(12,3%). The mean extra-corporal circulation time was 110,8±46,1min, aortic cross-clamping time 55,8±21,2min and Circulatory arrest time 21,2±7,5min. The mean cooling temperature during extra-corporal circulation was 20,4±2,9 ºC.

About postoperative data, inotropic support >12 hours was needed in 28,4%(n=44), V-A ECMO in 2,6%(n=4), ventilation time >12 hours in 23,2%(n=36), atrial fibrillation in 24,5%(n=38), 3rd degree AV block with need of permanent pacemaker implantation in 3,2%(n=5), pneumoniae in 7,1%(n=11) and stroke in 8,4%(n=13).

The mean timing to discharge was 16,5±11,3 days. The 30-day mortality was 6,5%(n=10): 2 of them during surgery and 3 before discharging. In the late follow-up period, the 5-year and 10-year survivals rates were 88.5%±2,6% and 77,1±3,7%, respectively. The 5-year and 10-year survivals rates free of MACCE events were 87,2±2,7% and 83,1±3,2%, respectively.

CONCLUSION

From the perspective of saving lives, the results of single centre casuistic emergency surgery were very acceptable and showed the way we should adopt even in selected older patients.

THE LOST AMULET: A CASE REPORT OF A DEVICE MIGRATION INTO THE LEFT VENTRICLE

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Keywords: *LAAC, Atrial fibrilation*

INTRODUCTION

Percutaneous left atrial appendage (LAA) occlusion is the gold standard procedure to reduce the risk of cardioembolic events in patients with nonvalvular atrial fibrillation (AF) that are unsuitable for chronic oral anticoagulation. Early dislocation or embolization of the occlusion device has been reported and is generally an emergency that requires an immediate percutaneous or surgical procedure for its removal.

AIMS

Our aim was to demonstrate the risks of percutaneous LAAC and the necessity of a majorly low risk surgical solution.

METHOD

A 66-year-old male with paroxysmal atrial fibrillation and Osler-Weber-Rendu Syndrome was referred for percutaneous LAA occlusion with an Amplatzer Amulet™ device. The procedure, executed under transesophageal echocardiography (TOE) guidance, was apparently a success. The next day transthoracic echocardiography (TTE) showed a migration of the device into the left ventricle, in an asymptomatic patient.

We decided to perform urgent surgical removal of the device. The patient underwent a minimal invasive surgery, through a right mini thoracotomy, with femoral cannulation, to remove the device from the left ventricle and to close the LAA with a purse-string suture; additionally, we also closed the transeptal puncture site.

The device was entangled in the mitral apparatus and was removed without damaging any chordae. The intraoperative TOE revealed trivial mitral regurgitation and successful LAA occlusion. The postoperative course was uneventful, and the patient was discharged from the hospital four days later.

RESULTS AND CONCLUSION

Transcatheter LAA occlusion is progressively gaining ground as a method to reduce the risk of thromboembolic events in patients with nonvalvular AF and contraindication for oral anticoagulation. However, it is nor risk free. Pericardial effusion requiring drainage, acute ischemic stroke due to air embolism or solid thromboembolism, embolization of the device and post implantation sepsis have been described. We report a case of embolization of the device to the left ventricle, that was successfully removed and the LAA closed, thus reducing the thromboembolic risk of the patient, through a minimally invasive approach.

IMPACT OF GENDER ON LIFE EXPECTANCY FOLLOWING CORONARY ARTERY BYPASS SURGERY

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Keywords: Coronary Coronary Artery Bypass; Sex; Life Expectancy;

INTRODUCTION

The need for coronary artery bypass grafting (CABG) surgery is steadily rising in the general population, driven by increasing life expectancy. Women, however, tend to have a poorer prognosis following CABG compared to men.

AIMS

To compare long-term survival in patients submitted to CABG with a sex and aged-matched general population.

METHOD

Longitudinal, retrospective, single center study, involving consecutive patients who underwent isolated primary CABG between 2004 and 2014. Exclusion criteria included emergency/salvage surgeries or the use of extracorporeal circulation without aortic clamping. All-cause mortality was assessed in February 2023. Long-term survival was evaluated through survival curve in the CABG cohort and general population. Portuguese life tables were taken from the INE (Instituto Nacional de Estatística), specifically for the study period plus follow-up (2004-2022), to estimate the expected number of deaths, using the age-specific death rate. To construct the survival curve for the reference population, estimate standardized mortality ratio (SMR = observed deaths/expected deaths) and to conduct the 1-sample Log-Rank test, comparing expected with observed deaths, we used the software provided by Massachusetts General Hospital Biostatistics Center. The mean follow-up time was 11 years, with a maximum of 19 years.

RESULTS AND CONCLUSION

From 3978 patients included , 21% were women (W). W were older (mean age 67±9 vs. 63±10 years, $p<0.001$) and had a higher prevalence of cardiovascular risk factors and severe chronic kidney disease compared to men (M). M more frequently had peripheral arterial disease and smoking habits. Although three-vessel disease was similar between sexes ($p=0.111$), W were less frequently implanted with ?3 grafts ($p<0.001$). At 5, 10, and 15 years of follow-up, the cumulative survival rates were 89%, 73%, and 57% for men, and 88%, 68%, and 46% for women, respectively. Comparing with the survival of the Portuguese population, CABG allowed M to equalize the risk of mortality to what was expected (SMR =1.1;95%CI:0.9-1.1), but W showed a higher risk of mortality after CABG than W in the reference population (SMR =1.6,95%CI:1.3-1.8).

This single-center retrospective study demonstrated that CABG offers significant benefit for men, aligning their survival rates with those of the general aged-matched population. However, in women, post-CABG survival rates were lower than expected compared to the aged-matched population suggesting that CABG may be less effective for women.

PROTHESIS-PATIENT MISMATCH AFTER AORTIC VALVE REPLACEMENT: PREDICTORS AND PROGNOSIS

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Keywords: *Prothesis-Patient mismatch; Aortic Valve Replacement; Trifecta bioprosthesis;*

INTRODUCTION

Severe prothesis-patient mismatch (PPM) has been associated with higher risk of late mortality and incidence of structural valve deterioration (SVD). However, data on this matter is sparse and more clarifying results are need.

AIMS

To assess the long-term mortality and need for reintervention due to SVD related to PPM after surgical aortic valve replacement (AVR) with Trifecta bioprosthesis (TF).

METHOD

Single-center, longitudinal study, consecutive patients who underwent surgical AVR with TF between July 2011 and December 2019 with available data from post-operative transthoracic echocardiogram (TTE) were enrolled. Moderate PPM was characterized by an aortic valve effective orifice area indexed (EOAi) between 0.84-0.65 cm2/m2, while severe PPM was defined by an EOAi<0.65cm2/m2 based on the TTE performed (median of 4 months post-operatively). Multivariable logistic regression analysis was employed to assess the covariates influencing PPM. Time-to-event outcomes were studied using Kaplan-Meier Curves, Log-Rank test and multivariable Cox Regression. Median follow-up was 6 years, maximum 12 years.

RESULTS AND CONCLUSION

We included 974 patients, 54% being men and 8% exhibiting PPM: 7% moderate and 1% severe. The cohort was divided into PPM group (joining moderate and severe cases, n=80) and Free-PPM group (n=894). Most of the cardiovascular risk factors were comparable between groups, except for diabetes mellitus which was higher in the PPM group (50% vs. 33%, p=0.003). The mean European System for Cardiac Operative Risk Evaluation (Euroscore II) was similar between groups (PPM 3.4±3.1% vs. Free-PPM 3.8±4.6%, p=0.859) and the body surface area (BSA) was higher in the PPM group (1.82±0.18m2 vs. 1.76±0.17m2, p=0.007)..Multivariable logistic regression identified diabetes mellitus (OR[95%CI]: 2.00 [1.25-3.18], p=0.003) and women (OR[95%CI]: 1.75 [1.06-2.86], p=0.027) as significant predictive factors for PPM. At 1-, 5- and 10- years of follow-up, cumulative survival for Free-PPM vs. PPM were 98% vs. 96%, 80% vs. 74% and 59% vs. 40%, respectively, Log-Rank test p=0.044. Multivariable adjustment showed that PPM patients had a higher risk of all-causes mortality (HR[95%CI]: 1.48 [1.03-2.14], p=0.035), adjusted for EuroSCORE II. Need for reintervention due to SVD was similar between groups (HR[95%CI]: 0.49[0.21-1.17], p=0.11).

PPM was linked to poorer survival outcomes compared to patients without PPM. Women and individuals with diabetes mellitus appear to face a higher risk of experiencing PPM. These results underscore the significance of conducting a thorough pre-operative evaluation to select appropriate prosthesis sizes for each patient.

SHORT AND LONG-TERM OUTCOMES OF SURGICAL TREATMENT OF TETRALOGY OF FALLOT

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Keywords: *TOF; Survival; Surgery;*

INTRODUCTION

Tetralogy of Fallot (ToF) is the most frequent cyanotic congenital heart disease. Surgical treatment is gold-standard treatment but residual problems are common and often require re-interventions.

AIMS

We aim to evaluate short and long-term outcomes of cohort o patient submitted to surgical treatment ToF.

METHOD

Between Jan-1998 to Dez-2023 a cohort of 151 patients were submitted to total repair of ToF. Mean age was 3.4±6.4 years (7 days-44years); male sex 107 (71%). In 18 cases (12%) Blalock–Taussig Shunt was done previously.

RESULTS AND CONCLUSION

Transannular patch repair was used in 76 (50%), pulmonary valve was spared in 71 (47%) and right ventricle to pulmonary artery conduit in 4 (3%). Cardiopulmonary bypass time and cross-clamp time were 72±31 and 39±11 minutes, respectively. Mean hospital length of stay was 9.9±15.7 days. In-hospital mortality was 3.9% (6 cases). Permanente pacemaker was implemented for complete heart block in 2 (1.3%) patients. Survival at 1, 5 and 15 years was 94.1±2.0%, 93.1±2.2% and 92.0±2.5%, respectively. Survival between patients who did and did not need a transannular patch was comparable. Freedom from pulmonary valve intervention (surgical or percutaneous) at 5, 10 and 20 years was 99.1±0.9%, 94.3±2.5% and 74.1±6.1%, respectively. As expected, those repaired with transannular approach had a lower freedom from pulmonary valve re-intervention.

The short and long-term outcome of total repair for tetralogy of Fallot was satisfactory. The clinical course is characterized by long-term intensive monitoring and significant rates of reintervention.

A SINGLE-CENTER RETROSPECTIVE STUDY OF TRIPLE VALVE SURGERY: EARLY AND MIDTERM OUTCOMES

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Keywords: *Triple valve surgery; hospital mortality; survival;*

INTRODUCTION

Triple valve surgery is recognized as a complex surgical procedure, associated with prolonged cardiopulmonary bypass and aortic cross-clamp times and significant rates of morbidity and mortality, remaining a challenge for surgeons.

AIMS

To describe early and midterm outcomes in patients who underwent triple valve surgery.

METHOD

In this retrospective, single-center study, triple valve surgery patients from a consecutive Trifecta Bioprosthesis cohort, from July 2011 to December 2019, were included. Survival and need for reoperation were accessed in December 2023. Hospital mortality was defined as in-hospital or within the first 30 days after surgery. Median follow-up was 5 years and maximum was 11 years. Kaplan-Meier method was used for time-to-event outcomes (all-causes mortality and need for aortic or mitral or tricuspid valves reoperation).

RESULTS AND CONCLUSION

Sixty-seven patients were included, 54% being male, with a mean age of 74±7. Most patients had a preoperative NYHA III-IV classification (n=37, 59%) and 13 (19%) had previous cardiac surgery. Surgery priority was urgent or emergent in 24 patients (36%). Active endocarditis was present in 10% of patients. There were 10 concomitant coronary artery bypass grafting (15%) and bypass and aortic cross clamping times were 193±63 and 139±47 minutes, respectively. Tricuspid valve was predominantly repaired (99%) and the mitral valve was mostly replaced (91%). In the immediate postoperative period, 48% of the patients developed de novo atrial fibrillation, 1 patient needed a permanent pacemaker and 6% performed re- exploration surgery due to bleeding. The median length of hospital stay was 13 days and hospital mortality was 19% (n=13). Excluding these patients, cumulative survival at 1-year, 5-year, 8-year were 93%, 65% and 57%, respectively. Regarding need for valvular reoperation, 5 patients performed a aortic bioprosthesis replacement: 2 due to nonstructural valve deterioration (post-operative), 2 due to structural valve deterioration (at 5 and 6 years of follow-up) and 1 due to endocarditis (3 months after index procedure) and 3 patients performed mitral prosthesis replacement (2 at 5 years of follow-up and 1 at 6 months). Freedom from valve related reoperation at 5-years and 8 years of follow-up was 93% and 80%, respectively.

This triple valve surgery cohort evidenced a high hospital mortality that could be partially justified by the characteristics of our sample, including advanced mean age and by the prevalence of previous cardiac surgery. Further studies and higher sample size are needed to identify which factors could be associated with high mortality rates in this particular population.

EARLY AND MID-TERM OUTCOMES OF MINIMALLY INVASIVE MITRAL VALVE SURGERY: A FIVE-YEAR EXPERIENCE FROM A SINGLE CENTER

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Keywords: *Minimal Invasive Cardiac Surgery; Mitral Valve Surgery; Mitral Valve Repair;*

INTRODUCTION

Minimally invasive mitral valve surgery (MIMVS) is a well-established technique for approaching the mitral valve. Our center initiated a MIMVS program in 2016, and since then we have performed this procedure on approximately 200 patients. Although the learning curve for this technique is steeper compared to conventional sternotomy, it has been demonstrated to be a safe and effective alternative. As its benefits become more widely recognized, MIMVS is increasingly regarded as the gold standard for mitral valve surgery.

In this report we aim to present the early and mid-term outcomes from the first five years of our minimally invasive mitral valve surgery program.

From November 2016 to December 2021, a total of 96 patients underwent MIMVS at our center. A retrospective analysis of clinical follow up data, early (1 year) and mid-term (3 years) outcomes was performed.

MIMVS through right thoracotomy with peripheral femoral cannulation was successfully performed in all 96 patients, no intra-operative conversion to sternotomy was reported. Patients mean age was 58 years old and 29 (30,21%) were female.

Mitral valve repair was performed in 70 patients (72,92%), all of these had mitral regugitation, the most common mechanism being chordae rupture (30,21%). The most common technique was annuloplasty (94,29%) associated with neochordae implantation (85,71%). Mitral valve replacement was mostly reserved for patients with rheumatic disease (13,54%), endocarditis (2,08%) and previous failed valve repair (5,21%). A total of 8 patients (8,33%) operated using this technique were re-do cases and all of these were performed without cross clamping.

Concomitant procedures using this approach included left atrial appendix closure (22,92%), tricuspid repair (18,75%), cryoablation (9,38%) and atrial septal defect closure (8,33%). In two cases simultaneous aortic valve replacement was performed.

Re-exploration for bleeding was necessary on 6 patients (6,25%). Median postoperative hospital stay was 5 days and no 30-day mortality was reported. Overall survival at 1 and 3 years was 94,79% and freedom from reoperation was 92,71% and 90,63%, respectively. In mitral valve repair cases only 7,25% at 1 year and 2,90% at 3 years had more than moderate mitral regurgitation.

Our program of MIMVS demonstrated excellent early and mid-term outcomes, comparable to those reported in other published data. These findings further support MIMVS as an alternative to conventional sternotomy for mitral valve surgery, offering significant benefits in terms of recovery and postoperative outcomes. Continued follow-up will be necessary to confirm these positive trends over the long term.

EPICARDIAL LEFT ATRIAL APPENDAGE CLOSURE USING THE ATRICLIP DEVICE – A SINGLE CENTER ANALYSIS.

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Keywords: *Atrial Fibrillation; Cardiac Surgery; Stroke;*

INTRODUCTION

Left atrial appendage (LAA) occlusion has become an important part of atrial fibrillation (AFib) treatment. Various techniques can be performed and have been described in the literature. Epicardial clip insertion proofed to be a reliable and safe option during cardiac surgery procedures.

METHOD

A prospective, longitudinal survey was conducted in this single center analysis from February 2022 until June 2024. A total of 77 patients (29 female / 48 male) underwent LAA occlusion with the epicardial AtriClip device during coronary artery bypass grafting (CABG), valve or combined procedures. We analyzed preoperative patient's risk profile, intraoperative data, rhythm and anticoagulation status.

RESULTS AND CONCLUSION

Mean age was 67,8 (37–81 years). The majority (19 patients, 24,7%) underwent aortic valve replacement, CABG (13 patients, 16,8%) and combined valve and CABG procedures (13 patients, 16,8%). A concomitant AFib ablation has been performed in 40% (pulmonary vein isolation in 19 and crioablation in 12 patients). Median EuroScore 2 was 2,29% (0,65% - 6,35%). Relevant risk factors included arterial hypertension (90%), diabetes (29%), smoking history (28%), chronic obstructive lung disease (23%) and obesity (BMI > 32 kg/m2), (17%). 26 patients (33%) were over 75 years old. Paroxysmal AFib was diagnosed preoperatively in 25 patients (32%), persistent AFib in 23 patients (30%) and permanent AFib in 23 patients (30%). 8 patients (10%) had history of previous ischemic stroke. 68 patients were on oral anticoagulation (88%), 56 on novel oral anticoagulants and 12 on vitamin K antagonists. Median CHA2DS2-VA score was 3,1 and median HAS-BLEND score 1,9.

There were no surgical complications related to clip implantation. Mean procedure time was 200 minutes, mean cardiopulmonary bypass 100 minutes and mean aortic cross clamp time 77 minutes. 10 CABG procedures were performed off-pump.

There was no in-hospital mortality. Overall follow up (mean 327 days (CI: 20; 734) mortality of 8 patients was not related to the underlying cardiovascular disease. 32 patients (42%) were discharged in sinus rhythm. 45 patients (58%) had postoperative periods of AFib or maintained in AFib. During follow-up there have been neither strokes nor hemorrhagic events reported. 29 patients (37%) maintained sinus rhythm. In 5 patients anticoagulation was stopped.

In AFib the LAA is considered the primary source for thromboembolic events. In our study AtriClip implantation demonstrated procedural safety and efficacy in excluding the LAA, with no intraoperative or postoperative device related complications. On follow up there have been no strokes or hemorrhagic events reported.

POSTCARDIOTOMY VENOARTERIAL EXTRACORPOREAL MEMBRANE OXYGENATION: A SINGLE CENTRE EXPERIENCE

Francisca Montenegro (Portugal) [1]; Tiago R Velho (Portugal) [1,2]; Nuno Carvalho Guerra (Portugal) [1]; Rafael Pereira (Portugal) [3,2]; Hugo Côrte-Real (Portugal) [1]; Ângelo Nobre (Portugal) [1];

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Keywords: *Cardiac surgery; Venoarterial extracorporeal membrane oxygenation; Complications;*

INTRODUCTION AND AIMS

Venoarterial extracorporeal membrane oxygenation (VA-ECMO) is a mechanical support tool in refractory cardiogenic shock increasingly used in postcardiotomy patients, but it is accompanied by high morbidity and mortality. In this study, characteristics of postcardiotomy VA-ECMO patients were analyzed, focusing on patient-associated complications and mortality.

METHOD

Data from all patients undergoing postcardiotomy VA-ECMO from 2017 to 2024 at Cardiothoracic Surgery Department, ULS Santa Maria, was retrospectively collected, including all registered complications and mortality rates. Continuous variables are presented as median with interquartile range, analyzed by Kruskal-Wallis. Categorical variables are presented in frequencies and percentages, analyzed by chi-square test. All reported p values are two-sided tests, with a significance level of 5% being considered.

RESULTS AND CONCLUSION

63 patients were included, 42 patients were male (66,7%), with a median age of 65 years (interquartile range [IQR]: 59-70 years), including 2 patients over 80 years old (3,2%). Most patients (55,6%) remained hospitalized between 11 and 30 days, having undergone elective (60,3%), urgent (23,8%) or emergent surgery (15,9%). Neurological complications were found in 31,7% of patients, pulmonary complications in 27,0%, liver dysfunction in 69,8% and renal dysfunction in 87,3%. Hematological dysfunction occurred in 63,5%, hemorrhagic complications in 41,3%, including re-operation for bleeding in 25,4% of patients. Mesenteric ischemia was recorded in 9,5% of patients, while limb ischemia in 31,7%. Finally, infectious complications were recorded in 66,7% of patients. In order to minimize our complications, we applied different strategies, such as the antegrade limb cannulation method to reduce limb ischemia. Wired cannulas and use of percutaneous closure devices have managed to reduce morbidity and mortality in our patients over the years. The overall survival was 34,9%, with a survival rate of 20% in 2017, while in 2024 it rose to 50%, denoting a decrease in the likelihood of survival with the increase of in-hospital stay and with higher age groups.

ECMO is invariably associated with the occurrence of complications that, together with the age of the patient, have an important impact on the prognosis. This justifies the importance of recording all the data and applying new methods to improve complication rates in postcardiotomy patients on VA-ECMO. In our series, renal injury, liver dysfunction, hematological dysfunction and infection are the most common complications. The overall survival was 34,9%, similar to previously published studies.

SURGICAL AORTIC VALVE REPLACEMENT FOR BICUSPID AND TRICUSPID VALVE DISEASE: 7-YEAR OUTCOMES IN >1100 PATIENTS

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Keywords: *Bicuspid aortic valve; Surgical aortic valve replacement; Aortic bioprosthesis;*

INTRODUCTION

A bicuspid aortic valve is the most common congenital heart disease, affecting 1-2% of the population. Most patients with a congenital bicuspid valve will require aortic valve replacement in adulthood, often before the age of 70 years. Thus, it is imperative to understand longer term outcomes of surgical aortic valve replacement (SAVR) in these patients.

AIMS

This study compared clinical outcomes of SAVR at 7 years of follow-up in patients with a congenital bicuspid valve to those in patients with a tricuspid valve.

METHOD

This prospective, non-randomized study was conducted at 39 European and North American centers. Patients with symptomatic moderate or severe aortic valve stenosis or chronic severe aortic regurgitation and an indication for SAVR were enrolled. One thousand one hundred thirty-two patients underwent SAVR with a single stented bovine pericardial bioprosthesis (339 bicuspid patients and 775 tricuspid patients). Patients were stratified according to the presence of tricuspid or congenital bicuspid etiology of aortic valve disease. Eighteen patients with unclear etiology were excluded. All deaths and valve- related adverse events were adjudicated by an independent clinical events committee. Survival Kaplan-Meier analyzes were used to determine the rates of death and valve-related adverse events.

RESULTS AND CONCLUSION

The patients with a tricuspid valve were significantly older, in a higher NYHA class and presented with a higher STS risk of mortality at baseline ($p<0.01$). Coronary artery disease, hypertension, and COPD were higher in the patients with a tricuspid valve ($p<0.01$). Aortic aneurysms were more frequent and BSA was higher among patients with a bicuspid valve ($p<0.01$).

Although the rate of all-cause mortality was higher in patients with a tricuspid native valve and the rate of non-structural valve deterioration was higher in patients with a bicuspid native valve, valve-related safety event rates were low overall (Table).

Good to excellent outcomes were achieved 7 years after SAVR in both patients with a congenital bicuspid valve and those with a tricuspid valve.

A COMPLEX CASE OF TRICUSPID REGURGITATION AND A SUCCESSFUL REPAIR - BEATING THE ODDS.

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Keywords: *Tricuspid regurgitation; Tricuspid valve surgery; Tricuspid valve repair;*

INTRODUCTION

Tricuspid regurgitation (TR) is a significant public health issue, associated with increased risks of both mortality and morbidity. Its prevalence is high and expected to rise further as populations age. Both the North American and European Societies of Cardiology/Cardiac Surgery recommend isolated tricuspid valve (TV) surgery for patients with severe TR who are symptomatic or present with right ventricular (RV) dilation, provided there is no severe RV dysfunction.

We report the case of a 77-year-old woman with a medical history that includes a hospitalization in January 2022 due to severe pulmonary embolism. She underwent fibrinolysis, which was complicated by cardiac arrest, multifactorial shock, and aspiration pneumonia. After discharge, she began to experience fatigue, dyspepsia, and weight loss. A transthoracic (TTE) and transesophageal echocardiogram (TEE) were performed in May 2022, revealing mild dilation of the right-sided heart chambers, with good biventricular systolic function (left ventricular ejection fraction—LVEF—50-55%). The tricuspid valve had a 13 mm vegetation associated with the anterior leaflet, leading to poor leaflet coaptation and severe TR. There was also chordal rupture and anterior leaflet perforation. The estimated pulmonary artery systolic pressure was 44 mmHg, and no other valvular abnormalities or significant findings were noted.

The case was presented to the heart team, and it was decided to initiate prolonged antibiotic therapy with sulfamethoxazole-trimethoprim 800/160 mg every 12 hours. Further investigations, including negative blood cultures, C-reactive protein (CRP), and erythrocyte sedimentation rate (ESR), were conducted. A follow-up TTE in June 2022

showed severe right atrial dilation and right ventricular dilation, but with overall good systolic function. The left ventricle maintained preserved systolic function (LVEF 50-55%). The tricuspid valve continued to show severe regurgitation, directed towards the septal wall due to anterior leaflet prolapse, but the vegetation was no longer visible. The patient underwent a successful tricuspid valve repair, including ring implantation and chordal replacement for the anterior leaflet. She had an uneventful six-day hospital stay and was discharged on optimized diuretic therapy with furosemide and spironolactone. At discharge, the echocardiogram revealed good biventricular function, a prosthetic ring on the tricuspid valve, and only trace residual TR.

Tricuspid valve surgery (TVS) should ideally be performed before the onset of right ventricular dysfunction or significant dilation. The high rates of mortality and morbidity seen after TVS are more often due to delayed referrals, advanced symptoms, and organ dysfunction rather than the surgery itself.

A RARE CASE OF A "NON-INTRACARDIAC NON-INTRAPERICARDIAL" MASS

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Keywords: *Right atrium; Cardiac cysts; Myxoma;*

INTRODUCTION

Pericardial cysts are rare benign lesions of the thoracic cavity and are mostly congenital anomalies1. They are induced by an incomplete coalescence of foetal lacunae during the development of the pericardium. Pericardial cysts are usually unilocular, well marginated spherical or teardrop shaped and may be attached to the pericardium directly or by a pedicle1.

We report a case of a 62 year-woman with hospitalization due to palpitations and shortness of breath. Normal physical exam and paroxismal atrial fibrillation. Thoracic CT showed a 65mm right paracardial mass. The transthoracic echocardiogram showed paracardial mass with right atrium compression and moderate pericardial effusion and transesophageal echocardiogram a hypoechogenic cystic mass without tricuspid regurgitation. Cardiac catheterization revealed right dominance with a medial right coronary fistula. Cardiac magnetic resonance with a 54 x 43 x 56 mm regular intrapericardial intracardiac lesion without right atrium infiltration or late enhancement and a moderate pericardial effusion. PET-CT with mild 18-FDG capture of the mass. Hydatic cyst? Leiomyoma? Fibroma? Myxoma? The patient was submitted to a sternotomy. It was possible to observe a small external hole in this area that contained fibrin, where there had probably been bleeding and pericardial effusion. On Cardiopulmonary bypass after cardioplegia, it was performed a resection of the mass which extended from the anterior area of the Right Atrium, up to approximately 3 cm from the tricuspid ring and lower to the origin of the inferior vena cava and also the right atrium/ventricular sulcus. A small arteriole was seen inside it and was ligated with sutures. Part of the wall was resected, but it was not possible to remove the entire membrane lining this cavity due to extended to the right atrium/ventricular sulcus, with the risk of causing injury or retraction of the right coronary artery. The remainder of the cavity was closed with a double continuous suture, bringing it closer to the wall of the RA. Finally, the right auriculotomy was closed. The patient was weaned from cardiopulmonary bypass without inotropic support. No complications on the post-operative period and patient discharge after 6 days under oral furosemide. The pericardial effusion analysis revealed reactive mesothelial hyperplasia, without evidence of neoplastic involvement.

Despite the rarity of the disease, we presented this case to demonstrate a set of abnormal points about intracardiac lesions. A cardiac surgery is being considered to treat this rare condition and good outcomes are available to obtain.

ANOMALOUS ORIGIN OF THE RIGHT CORONARY ARTERY: A CASE REPORT

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Keywords: *Origem; anómala; ACD;*

INTRODUCTION

Cardiac CT scan showed an anomalous origin of the right coronary artery from the left coronary sinus, with an interarterial course, evidence of obstructive atherosclerotic coronary disease at the middle portion of the RCA, as well as moderate Left Main (LM) disease with signs of atherosclerotic plaque instability.

Coronary Angiography revealed LM irregularities, LAD with 40% stenosis in the proximal portion and a stenosis of 40% in the distal portion, circumflex artery with a 40% stenosis in the proximal portion involving the origin of the first obtuse marginal and a right coronary with anomalous origin in the left coronary sinus, 90% stenosis in the middle portion (sub-selective cannulation).

The patient underwent off-pump CABG: RCA revascularization was achieved using a saphenous veins graft (RIMA was not suitable – too short) with a classic end-to-side anastomosis of the left SVG Proximal anastomosis (with lateral clamping of the Aorta) with prolene 6.0.

The patient was extubated in less than 24 hours and discharged on post-operative day 3.

At the 1-year follow-up, the patient was stable from a cardiovascular point of view and completely asymptomatic.

CORONARY ARTERY BYPASS GRAFTING AND ITS IMPACT ON SURVIVAL IN OCTOGENARIAN PATIENTS

Inês Sousa (Portugal) [1]; Sílvia Diaz (Portugal) [1]; Rui Cerqueira (Portugal) [1,2]; Ana Filipa Ferreira (Portugal) [1]; Mário J. Amorim (Portugal) [2]; Paulo Pinho (Portugal) [2]; André P. Lourenço (Portugal) [1,3]; António S. Barros (Portugal) [1]; Adelino Leite-Moreira (Portugal) [1,2]; Francisca Saraiva (Portugal) [1];

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Keywords: *Coronary Artery Bypass Graft; Octogenarians; Life expectancy;*

INTRODUCTION

Coronary artery bypass grafting (CABG) is gradually increasing in the octogenarian populationdue to increasing life expectancy.

AIMS

To compare long-term survival in octogenarian patients after CABG with a sex and aged-matched general population.

METHOD

Longitudinal, retrospective, single-center study including consecutive patients who underwent primary isolated CABG at an age of 80 or older, between 2004 and 2014. The primary outcome was all- causes mortality accessed in February 2023. Long-term survival was evaluated through survival curve in the octogenarian cohort and general population. Portuguese life tables were taken from the INE (Instituto Nacional de Estatística), specifically for the study period plus follow-up (2004-2022), to estimate the expected number of deaths, using the age-specific death rate. To construct the survival curve for the reference population, estimate standardized mortality ratio (SMR = observed deaths/expected deaths) and to conduct the 1-sample Log-Rank test, comparing expected with observed deaths, we used the software provided by Massachusetts General Hospital Biostatistics Center. The median follow-up was 8 years, maximum of 15 years

RESULTS AND CONCLUSION

Between 2004-2014, 184 octogenarian patients underwent primary isolated CABG, 68% being male, with age between 80 and 88. The majority of patients (73%) presented 3-vessels disease, 76% were classified as class IV according to CCS and 54% had experienced a recent myocardial infarction (<90 days). With respect to surgical techniques, the median [min-max] of implanted grafts was 2.0 [1.0- 5.0], 16% had bilateral internal mammary grafting and 48% were off-pump. Hospital mortality (within 30 days or before hospital discharge) occurred in 5%, the cumulative 1-year survival was 88% and overall mortality occurred in 82% patients. Of note, from the surviving patients in February 2023 (n=34), the median follow-up time was 10 years (ranging from 8 to 14). After excluding patients who had deceased earlier, i.e. before 1-year of follow-up (n=22), survival analysis comparing octogenarian CABG with the expected survival among an age/gender matched sample of the Portuguese population revealed that CABG could extend survival (SMR = 0.67, 95%CI: 0.55-0.82; p< 0.01).

This single-center retrospective study evidenced that CABG could offer a significant survival benefit in carefully selected octogenarian patients. Further analyses, with a larger sample, are needed to better understand which clinical characteristics and/or operative details are playing a relevant role on this result.

THE FORGOTTEN VALVE: MANAGEMENT OF FUNCTIONAL MODERATE-TO- SEVERE TRICUSPID REGURGITATION AT THE TIME OF AORTIC VALVE REPLACEMENT

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INTRODUCTION

Moderate-to-severe tricuspid regurgitation is observed in 0.55% of the general population and its prevalence increases with age. Secondary/functional etiology occurs in more than 90% of cases due to left-sided valvular or myocardial dysfunction1. The evidence for tricuspid surgery due to moderate-to-severe tricuspid regurgitation with left-sided valve surgery is controversial in literature.

The aim of this study was to evaluate the 17-year results of functional moderate-to-severe tricuspid regurgitation at the time of aortic valve replacement and compare the outcome of Aortic Valve Replacement plus tricuspid valve surgery against the group of patients with isolated Aortic Valve Replacement surgery of one single center. From January 2005-December 2022, 359 consecutive patients underwent aortic valve replacement and had preoperative moderate-to-severe functional tricuspid regurgitation. Of which, 112 had concomitant tricuspid valve surgery. Patients were divided in two groups: patients who had concomitant tricuspid valve surgery (aortic valve replacement + tricuspid valve surgery) – group A, n=112; and patients who had isolated aortic valve replacement – group B, n=247. The statistical software used was SPSS version 29 with p-value 0.05.

Mean age was (A vs. B) 68±10 vs. 73±9.3 years (p=0.093), 51% vs. 42.5% were male (p=0.102), preoperative atrial fibrillation was present in 60.7% vs. 34.8% (p=0.001), 57.1% vs. 49.4% were in NYHA class 3/4 (p=0.173). Mean preoperative ejection fraction was 56.1±13.4% vs 56.4±13.3% (p=0.61), mean systolic pulmonary artery pressure was 48.1±16.4 vs 47.2±14.2 mmHg (p=0.82) and 43.8% vs 5.2% (p<0.001) had preoperative severe tricuspid regurgitation. The 30-day mortality was 1.8% vs 1.2% (p=0.661), respectively. The 1st year, 5th year and 10th year survival rates were 89% vs 95%, 75% vs 77% and 65% vs 48% (p=0.857), respectively. The 1st year, 5th year and 10th year free-time for MACCEs survival rate were 98% vs 96%, 85% vs 84% and 42% vs 46% (p=0.558), respectively.

Adding tricuspid valve annuloplasty to aortic valve replacement did not show a significant impact in 30-day mortality. Patients with moderate-to-severe FTR without tricuspid valve surgery had similar long-term survival and incidence of MACCEs in the follow-up.