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Clinical and Echocardiographic Outcomes of Tricuspid Valve Surgery for Functional Tricuspid Regurgitation: A Retrospective Study

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Abstract

Background: Functional tricuspid regurgitation (FTR) is the most common form of tricuspid valve (TV) disease. FTR is the result of changes in the tricuspid annular geometry caused by dilatation of the right ventricle in the absence of structural valve abnormalities F11i; is caused by left-sided heart disease and subsequent pulmonary hypertension. Historically, FTR was believed to be benign and to resolve after the left-sided heart disease was corrected. However, recent research shows that FTR is an ongoing process, which can even worsen if left untreatedand that the presence of TV regurgitation is associated with impaired long-term survival.

Aim of Study: To assess postoperative clinical and echocardiographic outcomes, especially operative mortality, functional recovery, and change in TR after tricuspid valve surgery for FTR during left-sided heart valve surgeryDetermine perioperative predictors of unfavorable outcomes After Tv Surgery.

Patients and Methods: This retrospective study reviewed medical records and follow-up cards of adult patients who underwent open heart surgery for left-sided heart valve replacement, between January 2018 and December 2022, at Ain Shams University and Minia University Hospitals. The study included patients who underwent left-sided (mitral and/or aortic) heart valve surgery and tricuspid valve surgery with functional tricuspid regurge (FTR).

Results: PH, is likely because of TVR/TVr being more often performed as a concomitant procedure to either mitral or aortic valve surgery. The majority of patients in our analysis underwent TVR/TVr in conjunction with mitral valve or aortic valve surgeries (56%). In our study most of patient 98% due torehumatic heart disease, also most of patient 98% were underwent mitral valve replacement.

Conclusion: A concomitant TV repair strategy during left-sided valve surgery should be treated to improve patient outcomes by giving benefit of doubt to prevent regurgitation progression, RV dysfunction and is associated with a reduction in cardiac-related mortality and improved echocardiographic TR outcomes at follow-up.

Key Words: *Echocardiographic outcomes — Tricuspid valve surgery — Functional tricuspid regurgitation.*

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Introduction

FUNCTIONAL tricuspid regurgitation **(FTR)** is the most common form of tricuspid valve (TV) disease. FTR is the result of changes in the tricuspid annular geometry caused by dilatation of the right ventricle in the absence of structural valve abnormalities FTR is caused by left-sided heart disease and subsequent pulmonary hypertension [1]. Historically, FTR was believed to be benign and to resolve after the left-sided heart disease was corrected. However, recent research shows that **FTR** is an ongoing process, which can even worsen if left untreated **[2]** and that the presence of TV regurgitation is associated with impaired long-term survival.

Addition, residual or recurrent TR still represents an issue in a significant number of patients undergoing TV repair. Consequently, there has been an increasing interest in the pathophysiology and treatment of secondary TR **[3-4].**

Severe FTR has emerged as a Class I indication for concomitant tricuspid valve surgery in patients undergoing left valve surgery, but the optimal management of mild to moderate FTR remains controversial.

Untreated FTR may lead to right heart failure. Reoperative cardiac surgery for late **FTR** is associated with high morbidity and mortality.

FTR is primarily treated with a valve reconstruction which carries a lower operative risk than valve replacement. However, there is also debate whether the TV should be repaired using either a suture based or a prosthetic ring annuloplasty ***[5,6].***

Aim of the work:

Primary objective:

To assess postoperative clinical and echocardiographic outcomes, especially operative mortality, functional recovery, and change in TR after tricuspid valve surgery for FTR during left-sided heart valve surgery.

Secondary objective:

Determine perioperative predictors of unfavorable outcomes After Tv Surgery.

Patients and Methods

This retrospective study reviewed medical records and follow-up cards of adult patients who underwent open heart surgery for left-sided heart valve replacement, between January 2018 and December 2022, at Ain Shams University and Minia University Hospitals. The study included patients who underwent left-sided (mitral and/or aortic) heart valve surgery and tricuspid valve surgery with functional tricuspid regurge **(FTR).**

Inclusion criteria:

Adult patients: Older than 18 years old, both male and female patients are included, tricuspid valve surgery for FTR during replacement for left-sided heart valve disease via median stemotomy, preserved left ventricular function, elective cardiac surgery.

Exclusion criteria:

Organic Tricuspid valve disease, patients younger than 18 years old, redo heart valve surgery, concomitant CABG, patients with impaired left ventricular function, ischemic mitral valve regurgitation, previous pacemaker implantation, emergency surgery, infective endocarditis, isolated right sided cardiac surgery, previous cardiac surgery, unavailable medical record or invalid data of interest.

Demographic and baseline characteristics:

Age, gender, and body mass index (BMI).

Preoperative clinical and echocardiographic data:

Diabetes mellitus, hypertension, chronic obstructive pulmonary disease (COPD), chronic renal failure on dialysis, New York Heart Association (NYHA) functional class, preoperative atrial fibrillation, left ventricular (LV) ejection fraction and LV dimensions, etiology and site of heart valve disease, severity of TR: The severity of TR is graded on a scale from 1 to 4 (1+=mild, 2+=moderate, 3+moderate to severe, 4+severe) according to the Society of American Echocardiography, pulmonary hypertension based on pulmonary artery systolic pressure (PASP), Right ventricular function.

Operative data:

Durations of surgery: Bypass time and aortic cross-clamp time, intraoperative complications, Off-bypass complications, insertion of intra-aortic balloon pump (IABP), type of tricuspid valve surgery (suture or ring annuloplasty), type and size of implanted mitral or aortic prosthesis.

Operative technique:

Approach through a median stemotomy, heparin was given after opening of pericardium then ascending aorta and bicavalcannulation then going on

Valve inspection:

The annulus is assessed for dilation, followed by leaflet examination identification of fenestrations, dysplasia, flail segments, leaflet height, etc. The leaflets are retracted up with a blunt hook to visualize the subvalvar apparatus; the chordae and papillary muscles are assessed. After this anatomical assessment, saline is injected into the right ventricle and valve competency is analyzed. The site of the leak is identified, and the corresponding cause delineated. If the valve appears anatomically normal, and the leak is central, the cause is mostly due to a dilated annulus. Failure of coaptation may also be due to the relatively shorter height of the leaflet (anterior most common). The portion of tricuspid valve annulus that dilates the most corresponds to the inferior leaflet followed by anterior leaflet. In contrast to the mitral valve, the septal tricuspid annulus can also dilate.

The analyzed follow-up echocardiographic data includedseverity of TR, left ventricular function and dimension, right ventricular function, follow-up PASP.

Statistical analysis:

All analyses were conducted with SPSS version 20 (IBM-SPSS, NY, USA). Categorical variables presented as percentages and numbers, and compared using Chi-Square test. Continuous variables presented as mean and standard deviation, and compared using Student t-test. The changes in each continuous variable with time were analyzed using paired t-test. The difference of freedom rate from significant TR was shown with Kaplan Meier curve and analyzed using log rank test. Univariate analysis and multivariate regression analysis were performed to determine independent predictors of unfavorable outcomes and persistent moderate **FTR.** p-value <0.05 was the criterion for significance.

Results

This retrospective study included 196 out of 254 patients who underwent tricuspid valve (TV) surgery for functional tricuspid regurgitation (FTR), over a period of five years. The included patients were 113 (57.7%) female patients and 83 (42.3%) male patients (Fig. 1).

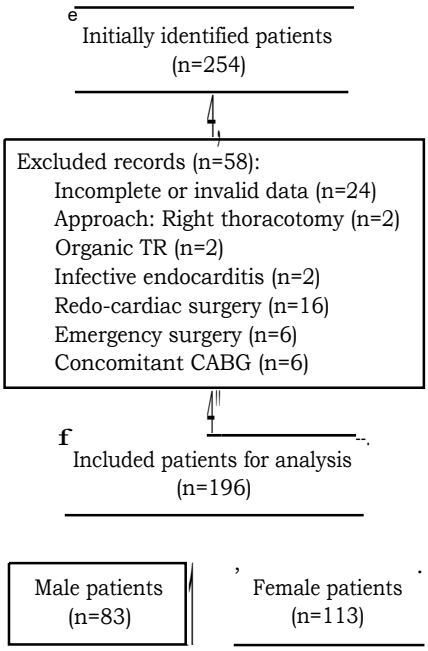

Fig. (1): Flowchart of patients' selection for the study.

The demographic characteristics of the studied patients are presented in (Table 1). The included patients had mean age of 41.28±12.88 (range: 19-73 years) and most of them (89.8%) were younger than 60 years. The mean body mass index (BMI) was 25 .58±4.86kg/m^2 and only 14.3% of patients were obese (BMI >30kg/m^2).

Preoperative clinical and echocardiographic risk factors and co-morbid conditions are presented in (Table 2). The identified factors included smoking (14.3%), diabetes (3.1%), cerebrovascular disease (4.1%), congestive heart failure (3.1%), atrial fibrillation (45.4%), right ventricular (RV) dysfunction (2%), left ventricular ejection fraction (LVEF) less than 50% (9.2%), Pulmonary hypertension (41.3%), Euroscore II >3% (3.1%), and advanced NYHA class III/IV (43.3%).

Most of the included patients had rheumatic heart valve disease (98%) and most of them also underwent isolated mitral valve replacement (Table 3).

Regarding preoperative severity of tricuspid regurgitation (Table 4), 135 patients (68.9%) had severe TR while the remaining 61 patients (31.1%) had moderate TR.

Regarding operative durations (Table 5), the mean bypass time was 91.86±3.30 minutes (range: 42-255 minutes) and the mean cross-clamp time was 60.89±29.43 minutes (range: 19-213 minutes).

The surgical techniques for tricuspid valve repair (Table 6) were DeVega suture repair in 177 patients (90.3%) and ring annuloplasty in 19 patients (9.7%).

Postoperative complications (Table 7) included intra-aortic balloon pump (IABP) for low cardiac output (LCO) (1%), cardioversion for arrhythmia (3.1%), re-operation for bleeding (4.1%), re-operation for cardiac cause (1%), pulmonary complications including re-intubation and pneumonia (1%), neurological complications including delirium and delayed recovery (1%), superficial sternal wound infection (2%). Major morbidity according to Society of Thoracic Surgery (STS) occurred in 16 patients (8.2%) including a composite of re-operation for cardiac cause, prolonged mechanical ventilation >24 hours, renal failure, permenant stroke, and deep sternal wound infection.

As shown in (Table 8), the mortality rate was 2.5% (3 patients). All deaths occurred postoperatively in-hospital with no cases of late mortality. The causes of death were cardiac in 2 patients and septicemia in one patient.

On echocardiographic follow-up of survivors (n=193) through a period of 12 months in median (range: 6-60 months), 179 patients (91.3%) showed an improvement in preoperative TR (none, trivial, or mild TR) while recurrent or residual TR (moderate or severe TR) occurred in 14 patients (7.1%), as shown in (Table 9).

The frequencies of moderate and severe TR during the follow-up period in survivors (n=193) were reduced significantly (p-value=0.01) to 9% and 1.5%, respectively (Table 10).

As shown in (Table 11), the overall outcome (A composite of mortality, major morbidity, and residual/recurrent tricuspidregurgitation) was favorable in 168 patients (85.7%) and unfavorable in 28 patients (14.3%).

On comparison to patients with preoperative moderate TR, the frequencies of unfavorable outcome and recurrent/residual TR in survivors were significantly higher in patients with severe TR. However, there were non-significant differences in the incidences of mortality and major morbidity (Table 12, and Figs. 2,3).

There were non-significant differences in the incidences of mortality, major morbidity, recurrent/residual TR in survivors, and overall unfavorable outcome between patients with De-vega suture repair and ring annuloplasty (Table 13).

On univariate analysis, female gender [OR (95% CI: 2.47(1-6.14), p-value=0.04] , preoperative AF [OR (95%CI: 2.45 (1.07-5.64), p-value=0.03], and severe TR [OR (95%CI: 4.39 (1.27-15.17), p-value=0.01] were significant risk factors for overall unfavorable outcome (Table 14).

On multivariate logistic regression analysis, preoperative AF [OR (95%CI: 2.44 (1.04-5.75),

p-value=0.04], and severe TR [OR (95%CI: 4.22 (1.20-14.85), p-value=0.02] were significant predictors for overall unfavorable outcome (Table 15).

Table (1): Demographic characteristics.

Variables		Surgery for FTR (n=196)
Age (years)	Mean ± SD	41.28±12.88
	Median (Range)	42 (19-73)
Age groups	<60 years	176 (89.8%)
	>60 years	20 (10.2%)
Gender	Male	83 (42.3%)
	Female	113 (57.7%)
BMI (kg/m2)	Mean ± SD	25.58±4.86
	Median (Range)	25.15 (15.61-40.16)
Obesity	Non-obese	168 (85.7%)
	Obese	28 (14.3%)

BMI: Body mass index.

Table (2): Preoperative clinical and echocardiographic risk factors and co-morbid conditions.

Variables	Mean ± SD Frequency (n=196)	Percent
Smoking	28	14.3
Diabetes mellitus	6	3.1
Cerebrovascular disease	8	4.1
Congestive heart failure	6	3.1
Atrial fibrillation	89	45.4
RV dysfunction	4	2
Low LVEF	18	9.2
Pulmonary hypertension	81	41.3
Euroscore II >3%	6	3.1
NYHA III/IV	85	43.3

RV : Right ventricle.
LVEF : Left ventricular ejection fraction.
Euroscore **II :** European System for Cardiac Operative Risk Evaluation **II.**
NYHA : New York Heart Association.

Table (3): Type of left sided valve pathology and surgical procedure.

Variables	Frequency (n=196)	Percent
Pathology:		
Myxomatous degeneration	4	2
Rheumatic heart disease	192	98
Procedure:		
Mitral valve replacement	192	98
Mitral valve replacement+ Aortic valve replacement	4	2

Table (4): Preoperative severity of tricuspid regurgitation.

Variables	Frequency (n=196)	Percent
Moderate TR	61	31.1
Severe TR	135	68.9

TR: Tricuspid regurgitation.

Table (5): Operative durations.

Variables		Surgery for TR (n=196)
Bypass time (min)	Mean ± SD	91.86-±3.30
	Median (Range)	85 (42-255)
Cross-clamp time (min)	Mean ± SD	60.89±29.43
	Median (Range)	54 (19-213)

TR: Tricuspid regurgitation.

Table (6): Surgical techniques for tricuspid valve repair.

Variables	Frequency (n=196)	Percent
DeVega suture repair	177	90.3
Ring annuloplasty	19	9.7

Table (7): Postoperative complications.

Variables	Frequency (n=196)	Percent
IABP for LCOS	2	1
Cardioversion for arrhythmia	6	3.1
Re-operation for bleeding	8	4.1
Re-operation for cardiac cause	2	1
Pulmonary complications	2	1
Neurological complications	2	1
Superficial SWI	4	2
Major morbidity	16	8.2

IABP : Intra-aortic balloon pump.
LCOS: Low cardiac output syndrome.
SWI : Sternal wound infection.

Table (8): Postoperative mortality and survival.

Variables	Frequency (n=196)	Percent
Survival	193	98.5
Mortality	3	2.5

Table (9): Recurrent or residual tricuspid regurgitation on echocardiography in survivors at the last follow-up.

Variables	Frequency (n=193)	Percent
Improved TR	179	91.3
Recurrent or residual TR	14	7.1

TR: Tricuspid regurgitation.

Table (10): Relationship between preoperative and follow-up change in severity of TR in survivors (n=193).

Variables	Preoperative TR		Total (n=193)
	Moderate (n=60)	Severe (n=133)	
Follow-up TR:			
None/trivial	38 (63.3%)	58 (43.6%)	96 (49.7%)
Mild	22 (36.7%)	61 (45.9%)	83 (43%)
Moderate	0 (0%)	12 (9%)	12 (62%)
Severe	0 (0%)	2 (1.5%)	2 (1%)

TR: Tricuspid regurgitation.

Table (11): Overall outcome (A composite of mortality, major morbidity, and residual/recurrent tricuspid regurgitation).

Outcome	Frequency (n=196)	Percent
Favorable	168	85.7
Unfavorable	28	14.3

Table (12): Relationship between preoperative severity of TR and postoperative outcomes.

Variables	TR Severity			*P*-value
	N	Moderate TR	Severe TR	
Unfavorable outcome:				
No	168	58 (95.1%)	110 (81.5%)	0.01*
Yes	28	3 (4.9%)	25 (18.5%)	
Major morbidity:				
No	180	58 (95.1%)	122 (90.4%)	0.26
Yes	16	3 (4.9%)	13 (9.6%)	
Mortality:				
No	193	60 (98.4%)	133 (98.5%)	0.93
Yes	3	1 (1.6%)	2 (1.5%)	
Recurrent/residual TR (survivors, n=193):				
No	179	60 (100%)	119 (89.5%)	0.006*
Yes	14	0 (0%)	14 (10.5%)	

TR: Tricuspid regurgitation.
* Significant difference.

Table (13): Relationship between type of surgical repair for TR and postoperative outcomes.

Variables	TR Repair			value
	N	Suture	Ring	
Unfavorable outcome:				
No	168	152 (85.9%)	16 (84.2%)	0.73
Yes	28	25 (14.1%)	3 (15.8%)	
Major morbidity:				
No	180	163 (92.1%)	17 (89.5%)	0.65
Yes	16	14 (7.9%)	2 (10.5%)	
Mortality:				
No	193	175 (98.9%)	18 (94.7%)	0.26
Yes	3	2 (1.1%)	1 (53%)	
Recurrent/residual TR (survivors, n=193):				
No	179	161(92%)	18 (100%)	0.37
Yes	14	14(8%)	0 (0%)	

TV: Tricuspid valve. TR: Tricuspid regurgitation.

Table (14): Univariate analysis of significant preoperative predictors of unfavorable postoperative outcome.

Risk factors	Favorable outcome (n=168)	Unfavorable outcome (n=28)	OR (95% CI)	*P*-value
Gender:				
Male	76 (45.2%)	7 (25%)	2.47	0.04*
Female	92 (54.8%)	21 (75%)	(1-6.14)	
AF:				
No AF	97 (57.7%)	10 (35.7%)	2.45	0.03*
AF	7 1(42.3%)	18 (64.3%)	(1.07-5.64)	
TR Severity:				
Moderate	58 (34.5%)	3 (10.7%)	4.39	0.01*
Severe	110 (65.5%)	25 (89.5%)	(127-15.17)	

OR: Odds ratio. AF: Atrial fibrillation.
CI : Confidence interval. TR: Tricuspid regurgitation.

Table (15): Multivariate logistic regression analysis of significant predictors for unfavorable postoperative outcome.

Variables	OR	%95 CI for OR		value
		Lower	Upper	
Female gender	2	0.78	5.09	0.14
AF	2.44	1.04	5.75	0.04*
Severe TR	422	120	14.85	0.02*

OR: Odds ratio. TR: Tricuspid regurgitation.
CI : Confidence interval. * Significant predictor.
AF: Atrial fibrillation.

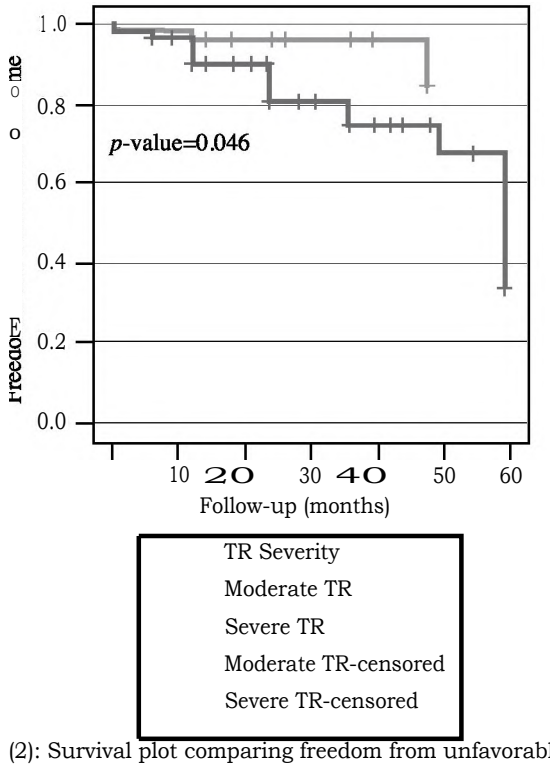

Fig. (2): Survival plot comparing freedom from unfavorable outcome between severe and moderate TR through the follow-up period. Log-rank test of equality of survival distributions for the different levels of TR Severity.

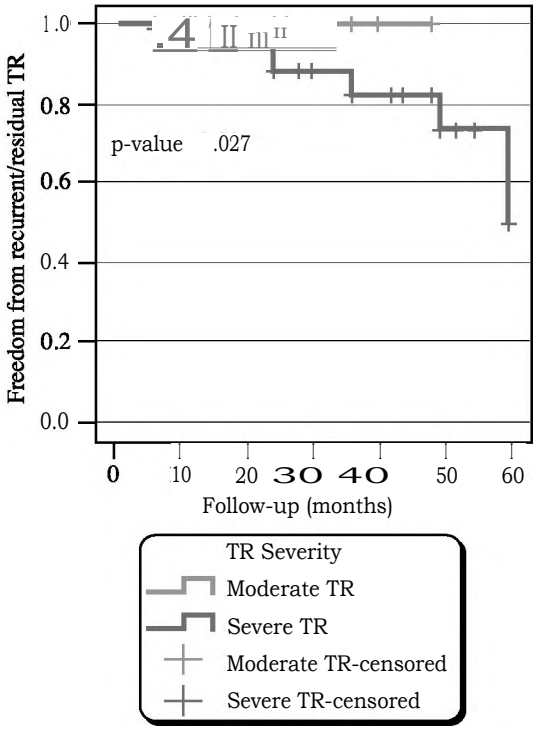

Fig. (3): Survival plot comparing freedom from recurrent/residual TR between severe and moderate TR through the follow-up period. Log-rank test of equality of survival distributions for the different levels of TR Severity.

Discussion

Functional tricuspid valve regurgitation (TR), defined as tricuspid valve incompetence in the absence of structural leaflet disease, is the most common type of tricuspid valve pathology, particularly in the setting of left sided heart disease. When left untreated after left-sided valvular surgery, functional TR does not spontaneously regress and can worsen over time [7].

Recently, it has also have demonstrated that functional TR secondary to left-sided valve diseases needs to be corrected, and indications for concomitant tricuspid valve repair were well established **[8,9].**

Severe FTR has emerged as a Class I indication for concomitant tricuspid valve surgery in patients undergoing left valve surgery, but the optimal management of mild to moderate FTR remains controversial. Untreated FTR may lead to right heart failure. Retroperative cardiac surgery for late FTR is associated with high morbidity and mortality. The objective of the present study was to assess postoperative clinical and echocardiographic outcomes, especially operative mortality, functional recovery, after tricuspid valve surgery for FTR during left-sided heart valve surgery. In addition to Determine perioperative predictors of unfavorable outcomes After FTv Surgery. In our study, the patientsbelow 60 years old represent 89.8% while the patients above 60 years old represent 10.2%. What is important in patients age is that there is no statistically significant difference between mean age in our study groups.

In our study, females represented 57.7% of the patients, and males represented 42.3%. Ton-Nu et al. [10] reported that sex distribution was 2/3 females and 1/3 males. This sex distribution is reflective of the sex distribution of rheumatic valve affection. Again, what is important is that there is no statistically significant difference in sex distribution in our study groups.

In our study the patients who had AF before functional tricuspid valve surgery represent 45.4% which is reasonable present that similar to Shiran et al. [n].

Functional TR occurs mainly from tricuspid annular dilation and RV enlargement, which are mainly caused by AF, secondary to left HF diseases.

In our study the patient with pulmonary HTN was 41.3%. This describes the PHTN common occur with the patient undergoing functional tricuspid reguregе and this similar to Farber et al. **[12].**

PH, is likely because of TVR/TVr being more often performed as a concomitant procedure to ei-

ther mitral or aortic valve surgery. The majority of patients in our analysis underwent TVR/TVr in conjunction with mitral valve or aortic valve surgeries (56%). In our study most of patient 98% due torehumatic heart disease, also most of patient 98% were underwent mitral valve replacement.

This was in agreement with McCartney et al. [13].

Who approved that most of the patients of functional tricuspid regurge were accomobnied with mitral valve replacement.

In our study: That patient who had severe FTR was 68.9% this was similar to Ng et al. **[14].** This may reflect the fact that TR is an insidious disease with more subtle symptoms and physical signs as compared to left sided valve disease. This also mirrors the pathophysiology of severe TR, where initial adaptability of the right ventricle to fluid loading evolves gradually to the decompensated state.

In the current study Major morbidity according to Society of Thoracic Surgery (STS) occurred in 16 patients (8.2%) including a composite of re-operation for cardiac cause, prolonged mechanical ventilation >24 hours, permenant stroke, and deep sternal wound infection. This was in disagreement with Yasmin et al. **[15]** who found that there was no significant differences in post operative morbidity were observed between patients undergoing TVR with MVS, in comparison to MVS group only for the primary. No significant differences were found between the 2 cohorts for most secondary outcomes, however patients of TVR+ group displayed a significant decrease for new-onset TR or progression of TR.

In the present study the mortality rate was 2.5% (3 patients). All deaths occurred postoperatively in-hospital with no cases of late mortality. The causes of death were cardiac in 2 patients and septicemia in one patient. This was similar to the study of Izumi **[16]** who found that despite an increase in the surgical volume (from 290/year in 2004 to 780/year in 2013), the operative mortality has not improved (in-hospital mortality, 8.8%). For redo operations, the in-hospital mortality rate was 8.4%.

And this was against the study of Zaid et al. **[17]** who proved that Concomitant TV surgery that was required in >40% of patients, did not increase overall mortality.

In our study the recurrent or residual TR was only in 7.1% of patients, this was similar to Czapla et al. **[18]** who approved that the recurrence rate was less in technique used for concomitant repair of functional TR than those used in severe pulmonary hypertension and right ventricular dysfunction, this could be explained by that the concomitant repair of FTR are clearly delineated in the current guidelines, consensus on the optimal timing and on the surgical technique seems less obvious. Several studies have reported a superior result with rigid ring TA compared with other annuloplasty techniques, claiming improved survival, less TR recurrence, and better quality of life.

The current study showed that on comparison to patients with preoperative moderate TR, the frequencies of unfavorable outcome and recurrent/residual TR in survivors were significantly higher in patients with severe TR. However, there were non-significant differences in the incidences of mortality and major morbidity, this was in agreement with Amano et al. **[19]** who proved that there was an association between severity of concomitant TR and poor long-term outcome, regardless of the initial treatment strategy.

In our study there were non-significant differences in the incidences of mortality, major morbidity, recurrent/residual TR in survivors, and overall unfavorable outcome between patients with De-vega suture repair and ring annuloplasty. This was in agreement with Sohn et al. **[20]** who found that In functional TR, annuloplasty methods did not influence long-term overall survival, cardiac mortality, and tricuspid valve-related events. However, in Egypt the suture repair is more favorable as it is more economically applicable.

This was in disagreement with Aksoy et al. **[21]** who found that the severity of TR diminished significantly in both the ring annuloplasty and De-vega suture, but the ratio of unfavorable outcome was significantly lower in the ring annuloplasty group.

In the present study there were many predictors for unfavorable outcomes such as female gender, preoperative AF, and severe TR this was in agreement with Cremer et al. **[22]** who proved that Worsening TR is associated with female sex, atrial fibrillation, right ventricular enlargement, and SAVR. Regardless of mode of AVR, worsening TR is similarly associated with a poor prognosis.

Conclusion:

A concomitant TV repair strategy during left-sided valve surgery should be treated to improve patient outcomes by giving benefit of doubt to prevent regurgitation progression, RV dysfunction and is associated with a reduction in cardiac-related mortality and improved echocardiographic TR outcomes at follow-up.Tricuspid regurgitation is not a benign lesion, and even moderate degrees have been associated with reduced survival. Unfavourable outcome predominantly in patients with AF and sever functional tricuspid regurge, conferring poor prognosis, so early surgery is recommended.

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النتائج الاكلينيكية وتخطيط صدى القلب بعد جراحة الصمام ثلاثى الشرفات لعلاج الارتجاع الوظيفى: دراسة بأثر رجعى

المقدمة: الصمام الوظيفى ثلاثى الشرفات هو الشكل الأكثر شيوعاً لمرض الصمام ثلاثى الشرفات. قلس ثلاثى الشرفات الوظيفى هو نتيجة للتغيرات في الهندسة الحلقية ثلاثية الشرفات الناجمة عن توسع البطين الأيمن فى غياب تشوهات الصمام الهيكلى يحدث قلس ثلاثى الشرفات الوظيفى بسبب مرض القلب الأيسر وارتفاع ضغط الدم الرئوى اللاحق.

الهدف من العمل: تقييم النتائج السريرية ونتائج تخطيط صدى القلب بعد العملية الجراحية، وخاصة الوفيات الناتجة عن العمليات الجراحية، والتعافى الوظيفى، والتغيير فى TR بعد جراحة الصمام ثلاثى الشرفات للقلس ثلاثى الشرفات الوظيفى أثناء جراحة صمام القلب الأيسر.

المرضى وطرق العلاج: راجعت هذه الدراسة بأثر رجعى السجلات الطبية وبطاقات المتابعة للمرضى البالغين الذين خضعوا لعملية قلب مفتوح لاستبدال صمام القلب الأيسر، فى الفترة ما بين يناير ٢٠١٨ وديسمبر ٢٠٢٢، فى مستشفيات جامعة عين شمس وجامعة المنيا. شملت الدراسة المرضى الذين خضعوا لجراحة صمام القلب الأيسر (التاجى و/أو الأبهر) وجراحة الصمام ثلاثى الشرفات مع ارتجاع وظيفى ثلاثى الشرفات.

النتائج: خضع غالبية المرضى فى تحليلنا لقلس الصمام ثلاثى الشرفات بالتزامن مع عمليات الصمام التاجى أو الصمام الأبهرى (٥٦٪). فى دراستنا، كان معظم المرضى ٩٨٪ بسبب أمراض القلب الروماتيزمية، كما خضع معظم المرضى ٩٨٪ لاستبدال الصمام التاجى.

الاستنتاج: يجب معالجة استراتيجية إصلاح الصمام ثلاثى الشرفات المصاحبة أثناء جراحة الصمام الأيسر لتحسين نتائج المرضى من خلال إعطاء فائدة الشكل منع تطور الصمام واختلال وظائف الصمام البطينى ويرتبط بانخفاض معدل الوفيات المرتبطة بالقلب وتحسين نتائج تخطيط صدى القلب عند TR متابعة.