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EARLY POST OPERATIVE VALVULAR PATIENT;
MODIFIED DEVAGA'S REPAIR FOR MODERATE TO SEVERE TR IS A COST-EFFECTIVE MANEUVER.

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ABSTRACT… Rheumatic Heart Disease is affecting the tricuspid valve almost as equally as it affects the other valves of the heart and the fact is that the single valvular disease of the heart is rare in our population. **Objectives:** To determine the cost effectiveness of modified devagia repair in relief of post operative valvular patient. **Period:** 2009-2014. **Setting:** Faisalabad Institute of cardiology Faisalabad, **Method:** All the patients with mitral valve disease having concomitant tricuspid valve regurgitation operated upon. Average age of 14 years to 45 years without gender discrimination. **Result:** A total of 380 patients were studied having concomitant mitral and tricuspid disease. Out of which 276 patients had moderate to severe tricuspid regurgitation on per-operative digital assessment for which modified DeVaga's repair was essential and done. Only 104 patients had moderate tricuspid regurgitation on per-operative digital assessment which was the main population of address in our study. Out of these, 76 patients were decided for modified DeVaga's repair due to their moderate tricuspid regurgitation and 28 patients were left alone without modified DeVaga's repair due to their mild to moderate tricuspid regurgitation. Then their early post operative course was monitored in terms of ICU stay and their functional recovery after operation. Patients with modified DeVaga's repair for moderate tricuspid regurgitation showed 30-42 hours early weaning of inotropes and mobilization from ICU than the patients without modified DeVaga's repair for mild to moderate tricuspid regurgitation. It is thus evident that modified DeVaga's repair for moderate tricuspid regurgitation saved hours of ICU stay, cost of ICU treatment, man hours of doctors, nurses & paramedical staff showing good post surgical functional recovery as well. **Conclusions:** Modified DeVaga's repair for moderate tricuspid regurgitation has a cost effective impact in the treatment of valvular patients causing early and good functional recovery after valvular replacement procedures, saving man hours of Cardiac surgeons, Nurses, Paramedical staff, patients and thus their cost of treatment.

Key words. Moderate Tricuspid regurgitation, Modified DeVaga's repair, Functional recovery.

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INTRODUCTION

Although mild to moderate TR improves spontaneously with the passage of time after satisfactory mitral valve replacement but complete recovery may not occur and can complicate the early or late post operative course of treatment which may sometimes necessitates redo operations for tricuspid regurgitation. However, the repair of tricuspid valve by commissurotomy, annuloplasty or both at the time of initial operation for mitral valve replacement / repair leads to good functional recovery and better cardiac outcome leading to early discharge from the hospital than when it is left untreated.

Untreated moderate tricuspid regurgitation can cause significant post operative morbidity leaving patients debilitated with symptoms of congestive cardiac failure like dyspnea, general body edema, congestive liver, fatigue and sense of being unwell. However, in general any degree of tricuspid regurgitation greater than mild affects negatively on survival of the patients which is independent of LVEF%, pulmonary hypertension, right ventricular size and function and other concomitant valvular lesion. Theoretically speaking, conserving the left ventricular geometry after mitral valve replacement, the strain on the tricuspid valve is reduced and thus causes decrease in tricuspid regurgitation, for which many people advocate

for conservative management in moderate tricuspid regurgitation. But in actual fact, by doing conservative treatment we are not only wasting the patient's time, surgeon's time and resources of health care by pushing the patients in long phase of undertreated state with unsatisfying results having variable survival but also not availing the excellent cost effective impact on continual medical services to the poor and needy population of the developing countries.

MATERIAL & METHOD

All the patients for mitral valve replacement / repair having concomitant moderate tricuspid valve regurgitation operated during the period of 2009-2014 at Faisalabad Institute of Cardiology, with wide range of age between 14 years to 45 years without any discrimination of gender were included in the study and two groups were made.

(1) Moderate regurgitation in which modified DeVaga's repair was done.
(2) Moderate regurgitation in which modified DeVaga's repair was not done.

Tricuspid valve regurgitation was digitally assessed per-operatively in all patients by a single surgical operator according to the following self devised general criteria.

Before putting the patients on bypass, left index finger in put into the right atrial appendage vertically and the pulp of the finger is rotated towards the tricuspid valve orifice and the findings are noted as

A) Severe tricuspid regurgitation. If the TR jet is felt by the pulp of the finger in the mid cavity.
B) Moderate tricuspid regurgitation. If the TR jet is felt by the pulp of the finger in between the mid cavity and the tricuspid valve orifice.
C) Mild tricuspid regurgitation. If the TR jet is felt by the pulp of the finger just in front of the tricuspid valve orifice.
D) No tricuspid regurgitation. If adequate co-optation of tricuspid valve leaflets is felt when the finger is further advanced into the tricuspid orifice.

And then their course of recovery was vigilantly monitored in terms of duration of weaning of inotropic supports, hours of ICU stay, subjective feeling of well being and any other complications like arrhythmias, low cardiac output syndrome, renal dysfunction, liver dysfunction, dyspnea, orthopnea and odema etc. These are summarized in table-I.

Total No. of Patients (380)			
	Mild TR	**Moderate TR**	**Severe TR**
Age			
< 30 years (210)	03	45	162
>30 years (170)	25	31	114
Sex			
Male (171)	27	37	107
Female (209)	01	39	169
PUL. HTN (380)			
Mild (028)	28	NIL	NIL
Moderate (127)	NIL	67	60
Severe (225)	NIL	09	216
AF	19	116	245

Tabel-I Demography of the Patients

Total No. of Patients (104)		
	Moderate TR Without TV repair (28)	**Moderate TR With TV repair (76)**
Mean ICU stay	52 hrs	28 hrs
Weaning of inotropes	30 hrs	26 hrs
Mobilization from bed	36 hrs	28 hrs

Table-II

RESULTS

From the critical analysis of the above data, it is quite evident that coexistent tricuspid valve pathology is quite desirable to be repaired at the time of initial mitral valve repair or replacement surgeries to achieve fast and excellent early post operative recovery.

DISCUSSION

Several recent studies also report that there may be great benefit to the patients for concomitant mitral valve replacement and modified DeVaga's repair for moderate TR in their both early and late post operative course[1-4]. For these reasons the American Heart Association / American college of cardiology and European guidelines both recommend tricuspid valve repair in almost all patients undergoing mitral valve operations who have concomitant severe TR(I) or mild to moderate TR with tricuspid annular dilatation(IIb) because redo operations for untreated TR or residual TR has a very high rate of unacceptable complications and high rate of mortality reported to be as high as 35%[(8,12)]. Due to which most cardiologists and cardiac surgeons are reluctant to go for tricuspid repair for moderate TR which was left alone during previous cardiac surgery[8].

However early benefits of surgical repair of the moderate TR are still underestimated and the procedure is under used all over the world (only the 10% of the volume of the mitral valve operations performed) despite the 75% of the patients with mitral valve disease having concomitant tricuspid regurgitation[6-7].

Most recent studies at Mayo Clinic suggest an early transient decrease in functional tricuspid regurgitation after mitral valve replacement, but within five years the degree of tricuspid regurgitation worsened beyond what it was preoperatively and the course of the disease was not smooth having multiple hospital admissions for CCF causing many fold extra cost of their later treatments plans. In a recent trial, Desai and colleagues showed that patients with concomitant mitral and tricuspid valve disease but having mitral valve repair/replacement alone have only early improvements in tricuspid regurgitation and right ventricular function and its geometry which soon subsequently returns to its preoperative levels of Tricuspid Regurgitation. However the results of those who have concomitant mitral valve repair/replacement and tricuspid valve repair for moderate tricuspid regurgitation at a time show excellent early and late sustained improvement in right ventricular function[2-3].

Our study has some limitations as it is a small study involving a single centre and the data in literature is limited and most of it belongs to developed countries where cost of treatment is not a matter of great concern and discussion.

CONCLUSION

Our data strongly recommend the modified DeVaga's repair to be done for any degree above the mild Tricuspid Regurgitation at the time of mitral valve repair / replacement to reduce the early cost of treatment and gaining maximum benefits of the modified DeVaga's repair procedure in terms of early and excellent functional and subjective improvement of the patients.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

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