Idiopathic Versus Pulmonary Hypertension
Functional Tricuspid Regurgitation: A Retrospective Echocardiography Based Single Center Study

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Abstract: Objective: The present study conducted in Hamidia hospital, Bhopal, MP (Central India) with the objective is to found the similarities and difference in idiopathic versus pulmonary hypertension functional tricuspid regurgitation. Materials and Methods: The present study conducted in the cardiology department Bhopal, MP (Central India) during January 2009 to July 2011 . It was a retrospective echo based study. Out of 10,000 consecutive cases undergoing echo CD 1203 cases of tricuspid regurgitation were found. In the present study we compare the idiopathic tricuspid regurgitation (Id-FTR) with pulmonary hypertension functional tricuspid regurgitation (PHTN-FTR). Results and Conclusions: The present study conducted in cardiology department Hamidia hospital, Bhopal, MP (Central India) suggests 12.03% of tricuspid regurgitation were found . On comparing Id-FTR and PHTN -FTR both were links to elderly and found predominantly in females and PASP is the important predictor in differentiating Id-FTR and PHTN-FTR in our study.

Keywords: Idiopathic FTR, Pulmonary hypertension FTR, Echocardiography

1. Introduction

Functional tricuspid regurgitation (FTR) is characterized by structurally normal leaflets and is due to the deformation of the valvulo-ventricular complex. While mild FTR is frequent and usually benign, patients with severe FTR may develop progressive ventricular dysfunction and incur increased mortality. Therefore, FTR should not be ignored, should be appropriately diagnosed and quantified by Doppler echocardiography, and should be evaluated for corrective surgical procedures.

Tricuspid regurgitation is a common echocardiographic finding. Tricuspid regurgitation can be classified as organic when it is due to intrinsic abnormality in the valve apparatus or secondary (functional) in the absence of structural abnormalities of tricuspid leaflets.

Organic TR results from structural abnormalities of TV apparatus, may be congenital or acquired and accounts for only 8-10% of all severe TRs. Functional TR is frequently caused by increased right ventricular (RV) afterload and is associated with advanced stages of left sided cardiac valve, myocardial or pulmonary, diseases, the link FTR excessive afterload of pulmonary hypertension (PHTN) is construed as a core mechanism and is the main focus of guidelines for valve diseases. Accruing reports noted FTR with normal pulmonary pressure and without overt cause, despite comprehensive workup, referred as idiopathic FTR (Id-FTR).

The present study was done to compare the idiopathic FTR and pulmonary hypertension FTR in Hamidia hospital, Bhopal, MP (Central India).

2. Materials and Methods

The present study conducted in the cardiology department Hamidia hospital Bhopal, MP (Central India) during January 2009 to July 2011. It was a retrospective echo based study. Echo CD was performed by consultant cardiologist. Among 10,000 consecutive cases undergoing echo CD 1203 cases of tricuspid regurgitation were found. In the present study we compare the idiopathic functional tricuspid regurgitation with pulmonary hypertension functional tricuspid regurgitation.

For defining Idiopathic tricuspid regurgitation (Id-FTR) eligibility criteria:
1) No organic tricuspid valve diseases.
2) PASP <50mmhg.
3) Absence of left ventricular systolic dysfunction (EF >50%)
4) Absence of pacemaker or defibrillator wire across tricuspid valve.
5) Absence of congenital, pericardial, endocardial or other valve diseases.

For defining pulmonary hypertension tricuspid regurgitation (PHTN-FTR):
1) PASP >50mmhg.
2) Increase in right ventricular afterload associated with advanced left sided valve diseases and myocardial or pulmonary diseases (eg. cor pulmonale)
3) Left ventricular systolic dysfunction (EF <50%)

3. Results

In the present study, 1203 cases of tricuspid regurgitation were found in Hamidia hospital, Bhopal, MP, (Central India). Of these 1203 cases 381 cases of idiopathic functional tricuspid regurgitation were found and 692 cases of
pulmonary hypertension functional tricuspid regurgitation were found. We compare the idiopathic functional tricuspid regurgitation with pulmonary hypertension functional tricuspid regurgitation as shown in Table 1.

Table 1: Shows features of Id-FTR and PHTN-FTR

| SL.NO. | VARIABLES | Idiopathic FTR(n=381) | PHTN-FTR(n=692) |
|--------|-----------|-----------------------|-----------------|
| 1      | AGE (>60YRS) | 65±18                | 68±18           |
| 2      | SEX        | Males/Females(42.8%/57.1%) | Males/Females(43.5%/56.5%) |
| 3      | LVSD       | Absent                | Present/Absent  |
| 4      | PASP       | <50mmhg               | >50mmhg         |

In the present study regarding age >60yrs no difference found between idiopathic FTR and pulmonary hypertension FTR. In both Id-FTR and PHTN-FTR 68±18 yrs were commonly affected. Females were predominantly affected in both Id-FTR and PHTN-FTR. LVSD is absent in Id-FTR as compared to PHTN-FTR left ventricular systolic dysfunction is either absent or present. Regarding pulmonary artery systolic pressure (PASP), it is less than 50mmhg in case of Id-FTR and greater than 50mmhg in case of PHTN-FTR and is a important predictor of severity in case of functional tricuspid regurgitation.

4. Discussion

In the present study, idiopathic functional tricuspid regurgitation were found in 25.7% of 1203 cases which is somewhat higher as compared to the study by Toplisky Y et al (28.9%).

In our study, among age >60yrs most common age groups affected were 65±18yrs in patient with Id-FTR as compared to Toplisky Y et al most commonly occurs in 71±13.9yrs.In the present study, most common age group affected were 68±18yrs in patient with PHTN-FTR as compared to Toplisky Y et al (20.6mmhg).

In the present study, females were predominantly affected in both Id-FTR and PHTN-FTR as compared to the study by Toplisky Y etal males in Id-FTR were 31.2% and in PHTN-FTR were of 30.7%.

In our study, PASP in Id-FTR is <50mmhg and in PHTN-FTR >50mmhg as similar to the study by Toplisky Y et al where PASP in Id-FTR is 39.6±6.5mmhg and in PHTN-FTR it is 71.5±20.6 mmhg.

5. Conclusion

The present study conducted in cardiology department Hamidia hospital Bhopal, MP(Central India) suggests 12.03% of tricuspid regurgitation were found. On comparing Id-FTR and PHTN-FTR both were links to elderly and found predominantly in females and PASP is the important predictor in differentiating Id-FTR and PHTN-FTR in our study.

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