Takatsubo Cardiomyopathy: A Case Series of Seven Patients

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Abstract

Takatsubo cardiomyopathy is a new emerging disease characterized by transient left ventricular systolic dysfunction followed by complete recovery of the same gradually over the course of few months. It represents 1-2% of all patients who present with acute ST elevation based on ECG finding and has a mortality of 1% and a recurrence of about 10%. The acute presentation greatly mimics acute coronary syndrome and needs differentiation from the same to avoid inadvertent thrombolysis and its consequences. We describe seven such patients at our institute over a period of 18 months.

The Observational study was carried out at Bombay Hospital from October 2009 to April 2011.

A total of 40 patients were screened. Out of which 7 were selected who fulfilled the inclusion criteria.

Inclusion Criteria

Sudden onset chest pain with ECG changes suggestive of ST elevation of > 1 mm in two contiguous leads or T wave inversion of 3 mm in at least three contiguous leads.

Echocardiographic parameters: Akinetic / Hypokinetic LV apex with sparing of other areas.

Exclusion Criteria

Evidence of previous documented LV dysfunction, evidence of previous myocardial infarction, patients suffering from SAH, phaeochromocytoma, history of fever, URI, LRTI or diarrhoea within last one month.

All the patients who presented with chest pain were admitted in Coronary ICU and serial troponin assays were done and peak values were recorded. Ejection fraction were determined by 2D Echocardiography (Simpsons method) and by left ventriculography. Coronary artery luminal narrowing if any were calculated using QCA. All the selected patients

Fig. 1: Left ventriculography in RAO 30 view at end systole showing ballooning of apical segment of left ventricle with preserved contraction of mid and basal ventricular segments.
were labeled as a case of Takatsubo cardiomyopathy if they meet the Mayo Clinic criteria for clinical diagnosis for the same.

Clinical follow up of all the patients were done based on OPD visits at 3, 6, 9, 18 months period.

All patients were subjected to follow up echocardiogram which was done at 3 months, 6 months, 1 year and at the end of study i.e at 18 months and all of them showed a good recovery. There was no mortality because of takatsubo cardiomyopathy in our case study nor there was any recurrence over the follow up period (Figures 1 - 6).1,2

Results

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<table>
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<tbody>
<tr>
<td>Total no. of patients</td>
<td>7</td>
</tr>
<tr>
<td>Female</td>
<td>6 (85%)</td>
</tr>
<tr>
<td>Males</td>
<td>1 (15%)</td>
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<tr>
<td>Mean age</td>
<td>55 years</td>
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Mean EF baseline         : 40%
Mean EF at 18 months follow up : 50%
Recurrence at 18 months  : 0%
Most common symptoms at presentation : Chest pain
ST elevation in ECG      : 3/7 (43%)
Most common stressor     : Medical illness.
Discussion

Apical ballooning syndrome (ABS) has gained much attention of recently because the clinical presentation greatly mimics acute coronary syndrome. It is also known by the names of ‘transient left ventricular dysfunction syndrome’, ‘broken heart syndrome’, ‘Takatsubo cardiomyopathy’. The end-systolic ventriculogram typically represents a pot (trap) used for catching octopus by the Japanese. It represents 1-2% of all patients who presents with acute ST elevation based on ECG finding and has a Mortality of 1% and a recurrence of about 10%.

Though the presentation is like acute coronary syndrome it is altogether a distinct entity with multiple plausible explanations of which a few include microvascular dysfunction and catecholamines released during the stress. Majority of the patients present with chest pain as in our cases also. ABS appears to occur exclusively in females; however few cases in males have been described. In our small observational study, we had one male patient who had carcinoma lung as the stressor for the illness.

Mayo clinic criteria for ABS : All the four criteria must be present :

1. Transient hypokinesia, akinesis or dyskinesia of left ventricular mid segments with or without apical involvement. The regional wall motion abnormality extends beyond a single epicardial vascular distribution.
2. Absence of coronary artery disease or angiographic evidence of acute plaque rupture.
3. New ECG abnormalities (either ST segment elevation or T wave inversion) or elevated cardiac troponins.
4. Absence of: recent significant head trauma, intracranial bleeding, phaeochromocytoma, myocarditis, HOCM.

The accurate diagnosis of ABS is important because the clinical presentation and ECG resemble ACS and might lead to inappropriate administration of fibrinolytics (thrombolytics) and related complications including the fatal ones like intracranial bleeding.

Stressor / Precipitating Event

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<tr>
<th>Sl. No.</th>
<th>Stressor / Precipitating Event</th>
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<tbody>
<tr>
<td>1</td>
<td>Carcinoma ovary on chemotherapy</td>
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<tr>
<td>2</td>
<td>Diabetic patient on OHA presenting as hypoglycaemia</td>
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<tr>
<td>3</td>
<td>COPD exacerbation</td>
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<tr>
<td>4</td>
<td>A middle age female who had recently lost husband</td>
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<tr>
<td>5</td>
<td>Male patient with carcinoma lung</td>
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<tr>
<td>6</td>
<td>Community acquired pneumonia</td>
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<tr>
<td>7</td>
<td>A 45 year executive who had lost her job</td>
</tr>
</tbody>
</table>

Treatment

Beta Blockers (to counter catecholamine effect and to prevent sudden cardiac death due to left ventricular dysfunction related tachyarrhythmias), diuretics (CHF and LV dysfunction), Ecosprin (if evidence of coronary atherosclerosis), anticoagulation in cases of severely reduced LV systolic function to prevent thromboembolism until there is good recovery, ACEI for preventing remodeling of left ventricle. Counselling for the stressor.

References

2. Elesber AA, Prasad A et al. Recurrence rate and long term prognosis of apical Ballooning syndrome. _Circulation_ 2006; 114 (supple 2):625 abstract