Letters to the Editor

**Takotsubo syndrome and coronary vasospasm: Two faces of the same coin?**

Takotsubo syndrome (TTS) is an acute form of reversible heart failure (HF) and can have a protean presentation. It poses a diagnostic challenge, which is of significant clinical relevance given the different management strategies when compared to other causes of acute HF. Although this entity was first described over 25 years ago, the specific pathophysiologic pathways leading to its development remain elusive. Currently, several possible mechanisms have been proposed for the occurrence of TTS, as recently elegantly reviewed in the Journal by Gupta et al. Interestingly, catecholaminergic imbalance seems to play a pivotal role in its expression, and reports of overlap between coronary vasospasm and TTS have suggested possible common pathways.

We present the case of a 70-year-old female patient who presented to the emergency department due to intense chest pain which started while she was resting, and had about one hour evolution. She also described intermittent bouts of similar chest pain in the three days prior to admission. Her previous medical history included arterial hypertension, dyslipidemia, asthma, euthyroid goiter and clinical depression. At admission she was still symptomatic, and hemodynamically stable. Her electrocardiogram (ECG) showed sinus rhythm, and discreet ST segment elevation in the lateral leads (Fig. 1). Due to her symptoms and the ECG changes, she was referred for cardiac catheterization (CC). The CC showed no significant epicardial coronary artery disease, but the ventriculography demonstrated a moderately reduced left ventricular ejection fraction (LVEF), as well as hypercontractility of the basal segments and hypocoaptility of all mid and distal left ventricular (LV) segments (Fig. 2).

Given the clinical presentation and the data from the CC, she was admitted to a cardiac intensive care unit (CICU) with the diagnosis of a TTS.

At first she showed progressive clinical improvement, and her ECG evolved with diffuse ST-T changes (Fig. 3A). During her stay at the CICU, however, she had recurring episodes of chest pain similar to the one at admission but of higher intensity. Her ECG (during pain) presented de novo antero-lateral ST segment elevation (Fig. 3B), and both clinical status and electrocardiographic changes were reversed with the administration of sublingual nitroglycerin. This presentation was assumed as coronary vasospasm, and beta-blockers were discontinued while therapy with long-acting nitrates and calcium-channel blockers was started. After therapeutic optimization there were no recurring episodes of chest pain, and the patient’s subsequent hospitalization was uneventful. She was discharged still maintaining a mildly reduced EF as well as hypocontractility of all LV distal segments. At follow-up the patient did not experience new episodes of chest pain and had a complete reversion of ECG repolarization changes (Fig. 3C), as well as presenting with a normal LVEF and no significant wall motion abnormalities.

Although clinical insight into TTS has greatly expanded over the years, its specific mechanism remains controversial. One of the most established and unifying hypothesis pertains to sympathetic nervous system derangement and subsequent catecholaminergic imbalances. The possible overlap between TTS and coronary vasospasm has been highlighted in the contemporary literature, although the specific nature of a possible relationship still warrants further ascertainment. As described in this case report, and in accordance with the current guidelines, the presence of both these entities can have therapeutic importance. In TTS, the possible role of catecholamine-induced cardiac damage is highlighted in the current European Society of Cardiology position paper, where avoidance of inotropes (such as noradrenaline and adrenaline) should be considered, as this could further worsen the patient’s clinical status. On the other hand, in patients with reduced LVEF (such as the case presented), beta-blockade should be considered. Given the high likelihood of coronary vasospasm in this case, and the possible adverse effects of beta-blockers in this setting, this therapy was discontinued, with the patient having no more chest pain episodes after further optimization.

This case report highlights the presence of coronary vasospasm in a patient with concurrent TTS. Given the important considerations in terms of both diagnosis and treatment, the nature of the association between these two entities, as well as the role of specific therapeutic agents, should be the focus of further research, given its clinical importance.

**Conflicts of interest**

None.

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Fig. 1. Electrocardiogram at presentation.

Fig. 2. Cardiac catheterization showing wall motion abnormalities typical of a Takotsubo syndrome.
Fig. 3. A. Electrocardiographic evolution after hospital admission, showing diffuse repolarization abnormalities. B. Electrocardiogram showing de novo ST-T changes during a bout of chest pain. C. Follow-up electrocardiogram, with reversal of repolarization abnormalities.
We read the interesting article ‘The truth about artificial sweeteners – are they good for diabetes’ by Purohit and Mishra published in your esteemed journal. This paper brings out clearly and convincingly side effects associated with currently popular sweeteners namely saccharin, aspartame, neotame and sucralose particularly their cancer producing potentials. On the other hand, there is a brief mention about stevia which is derived from plant Stevia rebaudiana. It possesses unique property of not only having a sweet taste but also sugar lowering and lipid lowering property – a distinct advantage over chemical sweeteners. Stevia rebaudiana contains steviol glycosides namely steviosides, rebaudioside, steviolbioside and isosteviol, which are responsible for its sweetness and sugar lowering properties. It has been said to be safe in long term use. Interestingly while stevia is a safe sweetener the currently popular chemical sweeteners have potential to cause cancer when used for long time. It is also well known that these sweeteners are used in many smokeless tobacco products like gutkha and paan masala preparations and these patients are reported to have oral and bladder carcinoma. Further looking at the current pandemic of diabetes prevailing all over Indian subcontinent, use of stevia as an alternative sweetening agent for people who have diabetes, pre-diabetes and/or obesity needs to be explored in robust statistically designed studies.

Conflicts of interest of each author

None.

References

1. Purohit V, Mishra S. The truth about artificial sweeteners – are they good for diabetes. Indian Heart J 2016;70:197–199.

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Stevia rebaudiana the unique medicinal plant with sweet taste having hypoglycemic and hypolipidemic activities

The Editor.
Authors reply: Stevia: Long term data is lacking!  

Reply

We agree with the letter that Stevia may be the safest among the currently available artificial sweeteners, however there are some limitations to this product as well. They are more expensive than natural “sugar,” have some minor side effects (bloating, nausea, etc.) but most importantly have licorice flavor and somewhat bitter after-taste so much so that they are not liked by most. Interestingly, while Food and Drug Administration, USA has approved refined Stevia (product Rebaudioside A) as generally recognized as safe (GRAS), it has not approved leaf or extract of Stevia as GRAS because of possible effect on reproductive, renal or cardiovascular system. In any case robust, long term (5 years or so) data on clinical outcomes with Stevia is still lacking.

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Exercise based evaluations and rehabilitation in heart failure: An addendum to the Cardiology Society of India’s management protocols for chronic heart failure

The Editor,

We read with great interest the comprehensive consensus document on management of chronic heart failure (HF) recently published in the Indian Heart Journal.1 To elaborate on the rehabilitative aspect, we hereby propose a rehabilitation algorithm for both hospitalized and out-patient, stable HF patients.

Exercise-based evaluations

Evaluation of exercise capacity is a crucial step to the functional assessment of patients with HF. Though the gold standard remains to be cardiopulmonary exercise testing, high costs of establishing labs makes this option unviable in India. Therefore, the use of the six minute walk test to assess the distance covered (6MWD). The test is safe and can be used across all classes of HF. Clinical monitoring using the 6MWD is useful and can be easily done with no extra costs of infrastructure.

Rehabilitation of HF

Participation in exercise training and physical activity for HF is a class I, Level A recommendation.2 Recently, there has been a focus on early rehabilitation of acute HF patients. A previous study from our center found that participation in early CR for acute HF improved discharge 6MWD as compared to those not receiving early CR.3 Discharge evaluations with the 6MWD is important as it would guide exercise prescription following discharge.

Phase-2 CR requires patients to continue exercise either under supervision in a center or at home. With the barriers to CR in the Indian context highlighted in previous studies,4 supervised programs may not always be feasible. Thus, the need for low intensity home based programs which can be administered by an CR exercise specialist to ensure safety. Based on our data and current clinical practice, and on the early CR algorithm proposed for ST elevation myocardial infarction5 we propose a clinical rehabilitation algorithm for HF patients for both early and subsequent phase-2 CR (Fig. 1a and b).
In-patient rehabilitation for acute heart failure and Phase-2 cardiac rehabilitation for heart failure.

Legend: HR – Heart rate; RPE – Borg’s Rating perceived exertion
Response to the editorial titled “BVS, RDN, IABP: The Afghanistan of interventional clinical trials”

The Editor,

We read your editorial article† titled “BVS, RDN, IABP: The Afghanistan of interventional cardiology trials with great interest. You provide us with a great insight into the understanding of the failure of these highly anticipated therapies in their respective pathologies. We agree that these therapies like BVS and RDN were launched into the market in a haste and hype was created earlier than evidence was provided for their beneficial role. But we would like to differ in the inference of conclusion about IABP in cardioshock. In our setting IABP is the one of most important tool in the management of cardioshock other than revascularisation. The reason for failure of IABP SHOCK II was probably because the etiology of cardioshock is multifactorial IABP supports only one aspect of the cardiogenic shock by decreasing the afterload to the heart and increasing the diastolic blood flow in the coronaries. Patients presenting >12 h were excluded in this trial, these are the most high risk patients and these patients are more likely to benefit from IABP because management of these patients will not only be revascularisation but also myocardial stabilisation as shown in studies involving strain imaging. Along with RVMI patients, a significant number of patients with LV dysfunction and cardiogenic shock have a component of fluid responsiveness and these patients are better managed by giving fluid therapy based on IVC diameter. So blindly putting IABP in all patients with cardiogenic shock will neutralise the beneficial results, as it occurred in the IABP SHOCK II trial. Rather IABP insertion should be done in high risk cardiogenic shock patients like late presenters, with severe left ventricular dysfunction, critical Left main/triple vessel disease, then only we can show a beneficial role of these mechanical circulatory device in cardiogenic shock patients. Sicker the patient, more likely is the benefit of IABP.

Authors reply: Exercise, but with caution!

Reply

There is a need for regular aerobic exercise in patients with heart failure with a view to improve functional capacity and reduce symptoms as well as the risk of heart failure related hospitalization. However, the therapeutic window of this approach is rather narrow and there is a possibility of harm as well if overdone. The need of the hour is to individualize this approach for each specific patient (tailor the exercise regimen according to patient’s phenotype and ability) but also region-specific guidelines (based on resources available and level of general education in the area). In this context proposed rehabilitation algorithm is a good idea particularly its emphasis on low-resource regions with emphasis on six-minute walk test to determine the physical capacity. As a matter of fact, active measures should be undertaken to educate not only cardiologists/physicians, physiotherapists, regulators but also patients regarding the salutary aspects of regulated exercise. However, the exercise programs should be custom made for individual patients and may even require the help of professionals. Furthermore, some practical tips should be given to these patients:

1. Don’t exercise outdoors in extreme weather/high humidity. Do indoor exercise instead.

2. If the exercise produces any undue symptoms (palpitations, chest pain or pressure, difficulty in breathing, dizziness or lightheadedness) immediately stop exercising and take rest. Seek medical attention if symptoms persist.

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References


Authors reply: Response to the editorial titled “BVS, RDN, IABP: The Afghanistan of interventional clinical trials”

Reply

It is an interesting point, but it again boils down to the fact that limitation of intra-aortic balloon pump (IABP) in cardiogenic shock is due to incomplete understanding of pathophysiology of this condition, being different in different etiologies responsible for cardiogenic shock. Since IABP helps mostly “by decreasing the afterload to the heart and increasing the diastolic blood flow in the coronaries,” it may be useful in ischemic destabilization but only when delivered quite early.1 Once hemodynamic decompensation sets in, IABP may not be useful in this condition as well because it only very slightly improves cardiac output as compared to other assist devices like Impella or Tandem Heart.2 Thus there is a narrow window where IABP can work and the crux lies in identifying this window and delivering IABP within this period itself. If delayed beyond a certain point, even this therapy may be worthless.

References


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