ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 6, Issue – 5, September – 2021 , Page No. : 153 - 155

Stress Cardiomyopathy: A Near Miss Entity in Postpartum Woman

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Citation this Article: Nikita Vijay, Savita Somalwar, "Stress Cardiomyopathy: A Near Miss Entity in Postpartum Woman", IJMSIR- September - 2021, Vol – 6, Issue - 5, P. No. 153 – 155.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Stress Cardiomyopathy, Apical Ballooning Syndrome, Broken Heart Syndrome or Takotsubo Cardiomyopathy is a rare reversible cardiac condition usually precipitated by acute emotional or physical stress. We are reporting this condition in a postpartum woman after caesarean section.

Keywords: Takotsubo cardiomyopathy, apical ballooning syndrome, broken heart syndrome, Peripartum cardiomyopathy (PPCM)

Introduction

Stress cardiomyopathy, also known as apical ballooning syndrome consists of transient left ventricular dysfunction [1,2]. It is characterized by regional wall motion abnormalities, chest pain or dyspnoea, new electrocardiographic (ECG) abnormalities (ST-segment elevation and/or T-wave inversion and QT interval prolong), minor elevations in serum levels of cardiac enzymes in the absence of significant coronary artery disease [1]. This condition mainly affects postmenopausal women who experience emotional or physical stress and subsequently develop chest pain and dysponea [2]. The pathophysiological mechanism is not well understood but seems to be catecholamine surge followed by metabolic disturbance, coronary microvascular impairment and multivessel epicardial coronary artery vasospasm [3]. The condition is self-limiting and resolves within a month [4].

Case Report

A 21 years old female had caesarean section in view of PIH and fetal distress and suddenly developed cough and orthopnea on day 3 of delivery. There was no history of fever or chest pain . She reported never similar symptoms in the past.

On examination she was afebrile, pallor, dyspneic, tachypneic, pulse- 140/min, regular, normal volume, B.P.-160/116 mm Hg, respiratory rate -30min, SpO2 - 60%, chest- bilateral coarse crepitations, pedal edema present. Oxygen by facemask started at 6 lit /min. After consultation with physician patient shifted to medical ICU and started on BIPAP ventilation, injection Lasix 40mg i.v. given. Meanwhile ECG, ABG and 2-D Echo done. On Echocardiography left ventricular

hypokinesia with apical ballooning and left ventricular ejection fraction 22% seen. She was started on Ramipril (ACE inhibitor) and Cardivas (Adrenergic blocker).

A subsequent echocardiogram on day 9, showed an improved ejection fraction of 45% with hypokinesia of apical segment of left ventrical. She went home well.

Discussion

Stress cardiomyopathy also known as apical ballooning syndrome, broken heart syndrome or Takotsubo cardiomyopathy, is a rare reversible form of acute heart failure, commonly triggered by physical or emotional stress [5]. Physical stress of surgery could be the precipitating factor in our case. A catecholamine surge triggering coronary spasm is believed to be an inciting event.

First described in Japanese literature in 1991 by Dote and colleagues and was originally named Takotsubo cardiomyopathy [6]. Tako-tsubo is the Japanese word for octopus trap, and, in this disorder, the heart has this distinctive shape when viewed on end-diastolic ventriculogram, with a wide base and long thin neck. Classically one observes hypokinesis or akinesis of the mid and apical segments of the left ventricle. This is what gives the apical ballooning appearance, narrowing at the ventricular neck and ballooning at the apex with the basal left ventricle often spared.

Diagnosis is mainly by echocardiography that shows regional wall-motion abnormality. The left ventriculogram shows characteristic regional wall-motion abnormalities involving the mid and usually the apical segments.

Postpartum cardiomyopathy (PPCM) is very important differential diagnosis for this condition. PPCM occur during last months of pregnancy and 6 months after delivery while stress cardiomyopathy occurs early after delivery. In PPCM, generalized hypokinesia leads to ventricular dilatation and depressed systolic function while in stress cardiomyopathy hypokinesia or akinesia seen at apex leads to ballooning and hyperkinesia seen at base of the left ventricle. Beta adrenergic inotropes is used for management of PPCM while contraindicated in stress cardiomyopathy. Pregnancy is discouraged as recurrence in next pregnancy is common in PPCM while pregnancy is not discouraged in stress cardiomyopathy however close cardiological follow up is recommended during next pregnancy [7,8,9].

Stress cardiomyopathy is a self-limiting syndrome, reassurance is an important aspect in the management. All patients should have an echocardiography at the time of diagnosis and before discharge to ensure that left ventricular function is improved. Considering the stress/catecholamine hypothesis, Beta-blockers may provide protection from recurrence.

The natural course of stress cardiomyopathy is one of rapid restoration of cardiac function and normalization of the echocardiogram. Mortality risk is very low.

Finally, follow up echocardiograms performed 1 and 3 months post discharge may be indicated for those patients without complete in-hospital restoration of ventricular function.

Conclusion

Stress cardiomyopathy is a rare reversible cardiac condition that should be differentiated from ischemic and peripartum cardiomyopathy. However, it has an excellent prognosis during pregnancy, prompt multidisciplinary management is must.

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